

 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks</b>		
		<b>IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
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TYPE OF QUALITY CONTROL REPORT	CERTIFICATION EXTENT	NOTES
QCF 1600.P51	TRANSFORMERS WITH RELEVANT CABLES AND FEEDER UNIT	(1)
QCF 1600.P52	TRANSFORMER SOAK TEST	(1)
QCF 1600.P53	DOUBLE FED SWITCHGEAR WITH RELEVANT CABLES AND FEEDER UNIT	(1)
QCF 1600.P54	SINGLE FED SWITCHGEAR WITH RELEVANT CABLES AND FEEDER UNIT	(1)
QCF 1600.P55	MCC / DISTRIBUTION PANEL WITH RELEVANT CABLES AND FEEDER UNIT	(1)
QCF 1600.P56	EMERGENCY DISTRIBUTION SYSTEM	(1)
QCF 1600.P57	DIESEL GENSET LOAD BANK TEST	(1)
QCF 1600.P58	UPS FUNCTIONAL TEST	(1)
QCF 1600.P59	DC SYSTEM FUNCTIONAL TEST	(1)
QCF 1600.P60	BATTERIES CHARGE	(1)
QCF 1600.P61	BATTERIES DISCHARGE	(1)
QCF 1600.P62	VARIABLE FREQUENCY DRIVE FUNCTIONAL TEST	(1)
QCF 1600.P63	ELECTRICAL HEAT TRACING SYSTEM	(1)
QCF 1600.P64	CATHODIC PROTECTION - GALVANIC ANODE POTENTIAL SURVEY	(1)
QCF 1600.P65	CATHODIC PROTECTION – IMPRESSED CURRENT ANODE POTENTIAL SURVEY	(1)
QCF 1600.P66	SYNCHRONOUS MACHINES - LUBRICATION, AIR GAP AND COUPLING ALIGNMENT	(1)

			 Samit Paul 2019.10.21 18:34:47 +05'30'	 Signed By <small>Digitally signed by Samit Paul, DN: cn=Samit Paul, o=TechnipFMC, email=samit.paul@technipfmc.com, c=IN, serial=20191021183447+05'30'</small>	 Approved By Abakappan L 2019.11.06 17:02:36 +05'30'	 Authorized By Morischristopher Jesumarian 2019.11.06 22:32:08 +05'30'
A	21.10.2019	ISSUED FOR INFORMATION	SMP	PKP	LA/ANJ	JMC
REV.	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED	AUTHORIZED

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<b>TYPE OF QUALITY CONTROL REPORT</b>	<b>CERTIFICATION EXTENT</b>			<b>NOTES</b>
QCF 1600.P67	ROTATING EQUIPMENT TEST			(1)
QCF 1600.P68	LIGHTING / RECEPTACLE / AIRCRAFT DISTRIBUTION PANEL WITH RELEVANT CABLES AND FEEDER UNIT & WELDING SOCKET			(1)
QCF 1600.P69	LIGHTING SYSTEM ILLUMINATION LEVEL MEASUREMENT			(1)
QCF 1600.P70	VARIOUS EQUIPMENT WITH RELEVANT CABLES AND FEEDER UNIT			(1)
QCF 1600.P71	HVAC SYSTEM			(1)
W12	INSPECTION FORM			

#### REFERENCE DOCUMENTS:

- DRAWINGS

#### LEGENDS

H	=	HOLD (RFI required - Work stop for inspection)
W	=	WITNESS (RFI required)
WC	=	100 % SUPERVISION AND EXAMINATION BY CONTRACTOR.
P	=	PREPARATION.
S	=	SURVEILLANCE (No RFI)
R	=	REVIEW OF REPORTS
N.A.	=	NOT APPLICABLE
A	=	AUTHORIZATION / APPROVAL
IFA	=	ISSUED FOR AUTHORIZATION/APPROVAL
INFO	=	FOR INFORMATION
!	=	WARNING (control of document revision status)

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## QUALITY CONTROL PLAN PRECOMMISSIONING

### ELECTRICAL EQUIPMENT

S.No	CHECK AND INSPECTION ITEM	QCF CODE	SITE INSPECTION EXTENT		NOTES
			CONTR.	TECHNIP	
<b>A</b>	<b>TRANSFORMERS WITH RELEVANT CABLES AND FEEDER UNIT</b>				
<b>1</b>	<b>Pre-energization checks</b>	1600.P51	W/C	W/R	
1-A1	Tap changer on central position and power supply available on protective devices	1600.P51	W/C	W/R	
1-A2	Neutral grounding monitoring devices turned on	1600.P51	W/C	W/R	
1-A3	Relays set and locking / racking provisions applied where required	1600.P51	W/C	W/R	
<b>2</b>	<b>Energization</b>	1600.P51	W/C	W/R	
<b>3</b>	<b>Post-energization checks</b>	1600.P51	W/C	W/R	
3-C1	Voltage, current and frequency readings on upstream relay / meter	1600.P51	W/C	W/R	
3-C2	Voltage and phase sequence readings on upstream relay / meter terminal	1600.P51	W/C	W/R	
3-C3	Voltage and frequency readings on downstream relay / meter display	1600.P51	W/C	W/R	
3-C4	Pickup check on upstream and downstream relays	1600.P51	W/C	W/R	
3-C5	Transformer visual and acoustical inspection	1600.P51	W/C	W/R	
3-C6	Associated neutral earthing transformer visual and acoustical inspection	1600.P51	W/C	W/R	
3-C7	Associated neutral earthing resistor visual and acoustical inspection	1600.P51	W/C	W/R	
3-C8	Associated neutral earthing resistor monitoring panel visual inspection	1600.P51	W/C	W/R	
3-C9	Voltage readings and phase sequence on downstream VT terminals	1600.P51	W/C	W/R	
3-C10	Voltage readings and phase sequence on downstream relay / meter terminals	1600.P51	W/C	W/R	
<b>B</b>	<b>TRANSFORMER SOAK TEST</b>				
<b>1</b>	<b>Soak Test</b>	1600.P52	W/C	W/R	
<b>C</b>	<b>DOUBLE FED SWITCHGEAR WITH RELEVANT CABLES AND FEEDER UNIT</b>				
<b>1</b>	<b>Pre-energization checks</b>	1600.P52	W/C	W/R	
1-A1	Power supply available on protective devices	1600.P52	W/C	W/R	
1-A2	Relays set and locking / racking provisions applied where required	1600.P52	W/C	W/R	
<b>2</b>	<b>Energization – Busbar “A”</b>	1600-P53	W/C	W/R	
<b>3</b>	<b>Post-energization checks – Busbar “A”</b>	1600-P53	W/C	W/R	

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### ELECTRICAL EQUIPMENT

S.No	CHECK AND INSPECTION ITEM	QCF CODE	SITE INSPECTION EXTENT		NOTES
			CONTR.	TECHNIP	
3-C1	Voltage and frequency readings (L1, L2, L3) on relay / meter display	1600-P53	W/C	W/R	
3-C2	Relays pickup	1600-P53	W/C	W/R	
3-C3	Voltage readings (L1, L2, L3) and phase sequence on relays terminals	1600-P53	W/C	W/R	
3-C4	Voltage readings (L1, L2, L3) and phase sequence on busbar VT terminal	1600-P53	W/C	W/R	
3-C5	Voltage comparison between busbar and incoming VT terminals	1600-P53	W/C	W/R	
<b>4</b>	<b>Energization – Busbar “B”</b>	1600-P53	W/C	W/R	
<b>5</b>	<b>Post-energization checks – Busbar “B”</b>	1600-P53	W/C	W/R	
5-E1	Voltage and frequency readings (L1, L2, L3) on relay / meter display	1600-P53	W/C	W/R	
5-E2	Relays pickup	1600-P53	W/C	W/R	
5-E3	Voltage readings (L1, L2, L3) and phase sequence on relays terminals	1600-P53	W/C	W/R	
5-E4	Voltage readings (L1, L2, L3) and phase sequence on busbar VT terminals	1600-P53	W/C	W/R	
5-E5	Voltage comparison between busbar and incoming VT terminals	1600-P53	W/C	W/R	
<b>6</b>	<b>Phasing check</b>	1600-P53	W/C	W/R	
6-F1	Synchronization checked between half busbars A and B	1600-P53	W/C	W/R	
6-F2	Voltage measurement, across phases	1600-P53	W/C	W/R	
6-F3	Voltage measurement, phase to phase (top)	1600-P53	W/C	W/R	
6-F4	Voltage measurement, phase to phase (bottom)	1600-P53	W/C	W/R	
<b>7</b>	<b>Other checks</b>	1600-P53	W/C	W/R	
7-G1	Bus tie manual closure	1600-P53	W/C	W/R	
7-G2	Automatic transfer	1600-P53	W/C	W/R	
<b>D</b>	<b>SINGLE FED SWITCHGEAR WITH RELEVANT CABLES AND FEEDER UNIT</b>				
<b>1</b>	<b>Pre-energization checks</b>	1600-P54	W/C	W/R	
1-A1	Power supply available on protective devices	1600-P54	W/C	W/R	
1-A2	Relays set and locking / racking provisions applied where required	1600-P54	W/C	W/R	
<b>2</b>	<b>Energization</b>	1600-P54	W/C	W/R	

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### PRECOMMISSIONING ELECTRICAL EQUIPMENT

S.No	CHECK AND INSPECTION ITEM	QCF CODE	SITE INSPECTION EXTENT		NOTES
			CONTR.	TECHNIP	
<b>3</b>	<b>Post-energization checks – Busbar</b>	1600-P54	W/C	W/R	
3-C1	Voltage and frequency readings (L1, L2, L3) on relay / meter display	1600-P54	W/C	W/R	
3-C2	Relays pickup	1600-P54	W/C	W/R	
3-C3	Voltage readings (L1, L2, L3) and phase sequence on relays terminals	1600-P54	W/C	W/R	
3-C4	Voltage readings (L1, L2, L3) and phase sequence on busbar VT terminals	1600-P54	W/C	W/R	
3-C5	Voltage comparison between busbar and incoming VT terminals	1600-P54	W/C	W/R	
<b>E</b>	<b>MCC / DISTRIBUTION PANEL WITH RELEVANT CABLES AND FEEDER UNIT</b>				
<b>1</b>	<b>Pre-energization checks</b>	1600-P55	W/C	W/R	
1-A1	Power supply available on protective devices	1600-P55	W/C	W/R	
1-A2	Relays set and locking / racking provisions applied where required	1600-P55	W/C	W/R	
<b>2</b>	<b>Energization</b>	1600-P55	W/C	W/R	
<b>3</b>	<b>Post-energization checks – Busbar</b>	1600-P55	W/C	W/R	
3-C1	Voltage and frequency readings (L1, L2, L3) on relay / meter display	1600-P55	W/C	W/R	
3-C2	Relays pickup	1600-P55	W/C	W/R	
3-C3	Voltage readings (L1, L2, L3) and phase sequence on relays terminals	1600-P55	W/C	W/R	
3-C4	Voltage readings (L1, L2, L3) and phase sequence on busbar VT terminals	1600-P55	W/C	W/R	
3-C5	Voltage comparison between busbar and incoming VT terminals	1600-P55	W/C	W/R	
<b>F</b>	<b>EMERGENCY DISTRIBUTION SYSTEM</b>				
<b>1</b>	<b>Pre-transfer checks</b>	1600-P56	W/C	W/R	
1-A1	Relays set and locking / racking provisions applied where required	1600-P56	W/C	W/R	
<b>2</b>	<b>System test</b>	1600-P56	W/C	W/R	
2-B1	Automatic transfer sequence from normal to emergency	1600-P56	W/C	W/R	
2-B2	Automatic retransfer sequence from emergency to normal	1600-P56	W/C	W/R	
2-B3	Manual transfer sequence from normal to emergency	1600-P56	W/C	W/R	
2-B4	Manual transfer sequence from emergency to normal	1600-P56	W/C	W/R	

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S.No	CHECK AND INSPECTION ITEM	QCF CODE	SITE INSPECTION EXTENT		NOTES
			CONTR.	TECHNIP	
2-B5	Maintenance transfer sequence from normal to emergency	1600-P56	W/C	W/R	
2-B6	Maintenance transfer sequence from emergency to normal	1600-P56	W/C	W/R	
<b>G</b>	<b>DIESEL GENSET LOAD BANK TEST</b>				
<b>1</b>	<b>Load Bank Test</b>	1600-P57	W/C	W/R	
<b>H</b>	<b>UPS FUNCTIONAL TEST</b>				
<b>1</b>	<b>Functional Test</b>	1600-P58	W/C	W/R	
<b>I</b>	<b>DC SYSTEM FUNCTIONAL TEST</b>				
<b>1</b>	<b>Functional Test</b>	1600-P59	W/C	W/R	
<b>J</b>	<b>BATTERIES CHARGE</b>				
<b>1</b>	<b>Batteries Charge</b>	1600-P60	W/C	W/R	
<b>K</b>	<b>BATTERIES DISCHARGE</b>				
<b>1</b>	<b>Batteries Discharge</b>	1600-P61	W/C	W/R	
<b>L</b>	<b>VARIABLE FREQUENCY DRIVE FUNCTIONAL TEST</b>				
<b>1</b>	<b>Functional Test</b>	1600-P62	W/C	W/R	
<b>M</b>	<b>ELECTRICAL HEAT TRACING SYSTEM</b>				
<b>1</b>	<b>Heaters Performance</b>	1600-P63	W/C	W/R	
<b>2</b>	<b>Temperature Control</b>	1600-P63	W/C	W/R	
<b>3</b>	<b>Alarms / Monitoring / Ground Fault</b>	1600-P63	W/C	W/R	
<b>N</b>	<b>CATHODIC PROTECTION - GALVANIC ANODE POTENTIAL SURVEY</b>				
<b>1</b>	<b>Readings</b>	1600-P64	W/C	W/R	
<b>O</b>	<b>CATHODIC PROTECTION - IMPRESSED CURRENT ANODE POTENTIAL SURVEY</b>				
<b>1</b>	<b>Readings</b>	1600-P65	W/C	W/R	
<b>P</b>	<b>SYNCHRONOUS MACHINES - LUBRICATION, AIR GAP AND COUPLING ALIGNMENT</b>				
<b>1</b>	<b>Lubrication</b>	1600-P66	W/C	W/R	
<b>2</b>	<b>Air gap measurement for synchronous machines</b>	1600-P66	W/C	W/R	

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S.No	CHECK AND INSPECTION ITEM	QCF CODE	SITE INSPECTION EXTENT		NOTES
			CONTR.	TECHNIP	
<b>3</b>	Coupling alignment and rotor supports distances for synchronous machines	1600-P66	W/C	W/R	
<b>Q</b>	<b>ROTATING EQUIPMENT TEST</b>				
<b>1</b>	Motor run in folder preparation	1600-P67	W/C	W/R	
<b>2</b>	<b>Preliminary checks on starter unit</b>	1600-P67	W/C	W/R	
1-A1	Insulation resistance tested	1600-P67	W/C	W/R	
1-A2	Protective relay set	1600-P67	W/C	W/R	
1-A3	T set (EEx-e motors only)	1600-P67	W/C	W/R	
1-A4	Frequency limits set (VFD motors only)	1600-P67	W/C	W/R	
1-A5	VFD parameters set (VFD motors only)	1600-P67	W/C	W/R	
1-A6	Electrical and mechanical operation	1600-P67	W/C	W/R	
<b>3</b>	<b>First start</b>	1600-P67	W/C	W/R	
<b>4</b>	<b>4 Hours No-Load Running Test</b>	1600-P67	W/C	W/R	
<b>R</b>	<b>LIGHTING/RECEPTACLE/AIRCRAFT DISTRIB. PANEL WITH RELEVANT CABLES AND FEEDER UNIT &amp; WELDING SOCKET</b>				
<b>1</b>	<b>Pre-energization checks</b>	1600-P68	W/C	W/R	
1-A1	Grounding connection of the panel	1600-P68	W/C	W/R	
1-A2	Connection tightness	1600-P68	W/C	W/R	
1-A3	Power supply available on protective devices	1600-P68	W/C	W/R	
1-A4	Relays set and locking / racking provisions applied where required	1600-P68	W/C	W/R	
<b>2</b>	<b>Energization</b>	1600-P68	W/C	W/R	
<b>3</b>	<b>Post-energization checks</b>	1600-P68	W/C	W/R	
3-C1	Panel indication lamps (voltage presence, heater on/off, etc.)	1600-P68	W/C	W/R	
3-C2	Voltage and frequency readings (L1, L2, L3) on relay / meter display	1600-P68	W/C	W/R	
3-C3	Relays pickup	1600-P68	W/C	W/R	
3-C4	Voltage readings (L1, L2, L3) and phase sequence on busbar terminals	1600-P68	W/C	W/R	

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S.No	CHECK AND INSPECTION ITEM	QCF CODE	SITE INSPECTION EXTENT		NOTES
			CONTR.	TECHNIP	
3-C5	Flasher alarm LEDs (only for aircraft warning lighting fixtures)	1600-P68	W/C	W/R	
3-C6	Space heater and relative thermostat operation	1600-P68	W/C	W/R	
3-C7	Welding socket operation	1600-P68	W/C	W/R	
3-C8	Beacons operation as steady burning / flashing (only for aircraft warning lighting fixtures)	1600-P68	W/C	W/R	
3-C9	As-built block diagram attached to this form	1600-P68	W/C	W/R	
3-C10	Visual inspection of all lighting fixtures energized	1600-P68	W/C	W/R	
<b>S</b>	<b>LIGHTING SYSTEM ILLUMINATION LEVEL MEASUREMENT</b>				
<b>1</b>	<b>Measures</b>	1600-P69	W/C	W/R	
<b>T</b>	<b>VARIOUS EQUIPMENT WITH RELEVANT CABLES AND FEEDER UNIT</b>				
<b>1</b>	<b>Pre-energization checks</b>	1600-P70	W/C	W/R	
1-A1	Grounding connection of the panel	1600-P70	W/C	W/R	
1-A2	Connection tightness	1600-P70	W/C	W/R	
1-A3	Selector switch in "off" position (off/auto/on)	1600-P70	W/C	W/R	
1-A4	Power supply available on protective devices	1600-P70	W/C	W/R	
1-A5	Relays set and locking / racking provisions applied where required	1600-P70	W/C	W/R	
<b>2</b>	<b>Energization</b>	1600-P70	W/C	W/R	
<b>3</b>	<b>Post-energization checks</b>	1600-P70	W/C	W/R	
3-C1	Panel indication lamps (voltage presence, heater on/off, etc.)	1600-P70	W/C	W/R	
3-C2	Voltage and frequency readings (L1, L2, L3) on relay / meter display	1600-P70	W/C	W/R	
3-C3	Relays pickup	1600-P70	W/C	W/R	
3-C4	Voltage readings (L1, L2, L3) and phase sequence on busbar terminals	1600-P70	W/C	W/R	
3-C5	Selector switch (off/auto/on) and main thermostat operation	1600-P70	W/C	W/R	
3-C6	Space heater and relative thermostat operation	1600-P70	W/C	W/R	
3-C7	Absorbed current readings (L1, L2, L3)	1600-P70	W/C	W/R	
3-C8	Thermostat final setting temperature	1600-P70	W/C	W/R	

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S.No	CHECK AND INSPECTION ITEM	QCF CODE	SITE INSPECTION EXTENT		NOTES
			CONTR.	TECHNIP	
<b>U</b>	<b>HVAC SYSTEM</b>				
<b>1</b>	<b>Pre-energization checks</b>	1600-P71	W/C	W/R	
1-A1	Grounding connection of the panels	1600-P71	W/C	W/R	
1-A2	Connection tightness	1600-P71	W/C	W/R	
1-A3	Selector switches in "off" position (off/auto/manual)	1600-P71	W/C	W/R	
1-A4	Cleanliness of the air filters and of the work areas for the equipment's start-up	1600-P71	W/C	W/R	
1-A5	Manual / motorized volume control dampers position	1600-P71	W/C	W/R	
1-A6	As-built auto / manual operation flow chart and process air flow diagram attached to this form	1600-P71	W/C	W/R	
1-A7	Power supply available on protective devices	1600-P71	W/C	W/R	
1-A8	Relays set and locking / racking provisions applied where required	1600-P71	W/C	W/R	
<b>2</b>	<b>Energization</b>	1600-P71	W/C	W/R	
<b>3</b>	<b>Post-energization checks</b>	1600-P71	W/C	W/R	
3-C1	Voltage and frequency readings (L1, L2, L3) on relay / meter display	1600-P71	W/C	W/R	
3-C2	Voltage readings (L1, L2, L3) and phase sequence on busbar terminals	1600-P71	W/C	W/R	
3-C3	Absorbed current readings (L1, L2, L3)	1600-P71	W/C	W/R	
3-C4	HVAC – I/O signals list	1600-P71	W/C	W/R	
3-C5	Panel indication lamps for all equipment's (voltage presence, on, off, run, trip, etc.)	1600-P71	W/C	W/R	
3-C6	Touch screen control panel indications for all equipment's (volt. presence, on, off, run, trip, etc.)	1600-P71	W/C	W/R	
3-C7	Motor. dampers, duct heaters, fans, compressors and steam humidify. operation (visual inspection)	1600-P71	W/C	W/R	
3-C8	Dirty filter fault indications alarm by differential pressure switch intervention	1600-P71	W/C	W/R	
3-C9	Unit shut down simulation by: fire alarm, overload, airflow loss, high gas conc., etc.	1600-P71	W/C	W/R	
3-C10	Unit alarms simulation by: high and high high temp., press. loss, loss airflow, system fail, etc.	1600-P71	W/C	W/R	
3-C11	Fresh air mode operation	1600-P71	W/C	W/R	
3-C12	Recirculation air mode operation	1600-P71	W/C	W/R	
3-C13	Fans interlocks with air handling and conditioning units	1600-P71	W/C	W/R	

## PRECOMMISSIONING

 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP-PRECOMMISSIONING OF ELECTRICAL EQUIPMENT</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1600-051	<b>Rev. No.</b> A	Page 10 of 10

## QUALITY CONTROL PLAN

### ELECTRICAL EQUIPMENT

S.No	CHECK AND INSPECTION ITEM	QCF CODE	SITE INSPECTION EXTENT		NOTES
			CONTR.	TECHNIP	
3-C14	Fans automatic change over	1600-P71	W/C	W/R	
3-C15	Relays pickup	1600-P71	W/C	W/R	
3-C16	Manual operation mode (selector switches in "manual" position)	1600-P71	W/C	W/R	
3-C17	Automatic operation mode (by varying temperature and relative humidity settings)	1600-P71	W/C	W/R	
3-C18	Automatic change over: from unit on duty to stand-by unit, compress. stages, weekly program	1600-P71	W/C	W/R	
3-C19	Temperature and relative humidity final settings	1600-P71	W/C	W/R	
<b>V</b>	<b>MISCELLANEOUS</b>				
<b>1</b>	<b>Inspection Form</b>	W12	P	W/R	(1)

NOTES: <sup>(1)</sup> SINGLE CERTIFICATE FOR EACH ITEM

#### GENERAL NOTES

- 1 THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THE JOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY TECHNIP AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN- CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF TECHNIP HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.
- 2 CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT TO TECHNIP/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.



PROJECT:

OWNER:

QUALITY CONTROL REPORT **1600-P51** PROJ. No.: REV. SH. \_\_\_ OF \_\_\_

ELECTRICAL EQUIPMENT - PRECOMMISSIONING TRANSFORMERS WITH RELEVANT CABLES AND FEEDER UNIT CONTRACTOR : **1600-P51 N°**

**GENERAL DATA**

Location / area: System / subsystem: Date (dd/mm/yy):

Transformer  Reactor Tag: Manufacturer: Serial no.:  
 Rated kVA: Rated V<sub>cc</sub>%: Primary kV: Secondary kV:

1 - Pre-energization checks			Accepted		
Step	Activity		Yes	No	NA
A1.	Tap changer on central position and power supply available on protective devices				
A2.	Neutral grounding monitoring devices turned on				
A3.	Relays set and locking / racking provisions applied where required				

**2 - Energization** Date (dd/mm/yy): Time (hh:mm)

3 - Post-energization checks			Accepted		
Step	Activity		Yes	No	NA
C1.	Voltage, current and frequency readings on upstream relay / meter				
C2.	Voltage and phase sequence readings on upstream relay / meter terminals				
C3.	Voltage and frequency readings on downstream relay / meter display				
C4.	Pickup check on upstream and downstream relays				
C5.	Transformer visual and acoustical inspection				
C6.	Associated neutral earthing transformer visual and acoustical inspection				
C7.	Associated neutral earthing resistor visual and acoustical inspection				
C8.	Associated neutral earthing resistor monitoring panel visual inspection				
C9.	Voltage readings and phase sequence on downstream VT terminals				
C10.	Voltage readings and phase sequence on downstream relay / meter terminals				

**Upstream protective devices readings**

Switchgear _____	Cubicle _____	Relay _____	Display	Volts	V	kV	L1	L2	L3
				Current (A)			L1	L2	L3
				Frequency (Hz)					
			Terminals	Volts	V	kV	L1	L2	L3
Phase sequence			Clockwise			Counterclockwise			
Switchgear _____	Cubicle _____	Relay _____	Display	Volts	V	kV	L1	L2	L3
				Current (A)			L1	L2	L3
				Frequency (Hz)					
			Terminals	Volts	V	kV	L1	L2	L3
Phase sequence			Clockwise			Counterclockwise			

**Downstream protective devices readings**

Switchgear _____	Cubicle _____	Relay _____	Display	Volts	V	kV	L1	L2	L3
				Current (A)			L1	L2	L3
				Frequency (Hz)					
			Terminals	Volts	V	kV	L1	L2	L3
Phase sequence			Clockwise			Counterclockwise			





C1.	Voltage and frequency readings (L1, L2, L3) on relay / meter display																							
C2.	Relays pickup																							
C3.	Voltage readings (L1, L2, L3) and phase sequence on relays terminals																							
C4.	Voltage readings (L1, L2, L3) and phase sequence on busbar VT terminals																							
C5.	Voltage comparison between busbar and incoming VT terminals																							
<b>4 - Energization – Busbar “B”</b>										Date (dd/mm/yy):				Time (hh:mm)										
<b>5 - Post-energization checks – Busbar “B”</b>										Accepted														
Step	Activity										Yes	No	NA											
E1.	Voltage and frequency readings (L1, L2, L3) on relay / meter display																							
E2.	Relays pickup																							
E3.	Voltage readings (L1, L2, L3) and phase sequence on relays terminals																							
E4.	Voltage readings (L1, L2, L3) and phase sequence on busbar VT terminals																							
E5.	Voltage comparison between busbar and incoming VT terminals																							
<b>Protective devices readings</b>																								
Switchgear _____	Cubicle _____	Relay _____	Display	Volts	V	kV	L1	L2	L3															
			Terminals	Volts	V	kV	L1	L2	L3															
			Phase sequence				Clockwise			Counterclockwise														
Switchgear _____	Cubicle _____	Relay _____	Display	Volts	V	kV	L1	L2	L3															
			Terminals	Volts	V	kV	L1	L2	L3															
			Phase sequence				Clockwise			Counterclockwise														
Switchgear _____	Cubicle _____	VT _____	Terminals	Volts	V	kV	L1	L2	L3															
			Phase sequence				Clockwise			Counterclockwise														
			Phase sequence				Clockwise			Counterclockwise														
Switchgear _____	Cubicle _____	VT _____	Terminals	Volts	V	kV	L1	L2	L3															
			Phase sequence				Clockwise			Counterclockwise														
			Phase sequence				Clockwise			Counterclockwise														
<b>6 - Phasing check</b>										Accepted														
Step	Activity										Yes	No	NA											
F1.	Synchronization checked between half busbars A and B																							
F2.	Voltage measurement, across phases			R <sub>A</sub> to R <sub>B</sub>	Ok	Y <sub>A</sub> to Y <sub>B</sub>	Ok	B <sub>A</sub> to B <sub>B</sub>	Ok															
F3.	Voltage measurement, phase to phase (top)			R <sub>A</sub> to Y <sub>A</sub>	Ok	R <sub>A</sub> to B <sub>A</sub>	Ok	Y <sub>A</sub> to B <sub>A</sub>	Ok															
F4.	Voltage measurement, phase to phase (bottom)			R <sub>B</sub> to Y <sub>B</sub>	Ok	R <sub>B</sub> to B <sub>B</sub>	Ok	Y <sub>B</sub> to B <sub>B</sub>	Ok															
<b>7 - Other checks</b>										Accepted														
Step	Activity										Yes	No	NA											
G1.	Bus tie manual closure																							
G2.	Automatic transfer																							
REMARKS :																								
<b>INSPECTORS</b>					<b>CONTRACTOR</b>					<b>PMC</b>					<b>OWNER</b>					<b>THIRD PARTY</b>				
<b>NAME</b>																								
<b>SIGNATURE</b>																								
<b>DATE</b>																								



PROJECT:

OWNER:

QUALITY CONTROL REPORT **1600-P54** PROJ. No.: REV. SH. \_\_\_ OF \_\_\_  
**ELECTRICAL EQUIPMENT – PRECOMMISSIONING**  
 SINGLE FED SWITCHGEAR WITH RELEVANT CABLES AND FEEDER UNIT CONTRACTOR : **1600-P54 N°**

**GENERAL DATA**

Location / area: System / subsystem: Date (dd/mm/yy):  
 Manufacturer: Type: Serial no.:  
 Rated voltage: Rated current: Rated SC kA:  
 Tag number: Ref. drawings:

1 - Pre-energization checks		Accepted		
Step	Activity	Yes	No	NA
A6.	Power supply available on protective devices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A7.	Relays set and locking / racking provisions applied where required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**2 - Energization** Date (dd/mm/yy): Time (hh:mm)

3 - Post-energization checks		Accepted		
Step	Activity	Yes	No	NA
C11.	Voltage and frequency readings (L1, L2, L3) on relay / meter display	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C12.	Relays pickup	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C13.	Voltage readings (L1, L2, L3) and phase sequence on relays terminals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C14.	Voltage readings (L1, L2, L3) and phase sequence on busbar VT terminals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C15.	Voltage comparison between busbar and incoming VT terminals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Protective devices readings**

Switchgear _____	Cubicle _____	Relay _____	Display	Volts <input type="checkbox"/> V <input type="checkbox"/> kV	L1	L2	L3	
			Terminals	Volts <input type="checkbox"/> V <input type="checkbox"/> kV	L1	L2	L3	
			Phase sequence		<input type="checkbox"/> Clockwise		<input type="checkbox"/> Counterclockwise	
Switchgear _____	Cubicle _____	Relay _____	Display	Volts <input type="checkbox"/> V <input type="checkbox"/> kV	L1	L2	L3	
			Terminals	Volts <input type="checkbox"/> V <input type="checkbox"/> kV	L1	L2	L3	
			Phase sequence		<input type="checkbox"/> Clockwise		<input type="checkbox"/> Counterclockwise	
Switchgear _____	Cubicle _____	VT _____	Terminals	Volts <input type="checkbox"/> V <input type="checkbox"/> kV	L1	L2	L3	
			Phase sequence		<input type="checkbox"/> Clockwise		<input type="checkbox"/> Counterclockwise	
			Terminals	Volts <input type="checkbox"/> V <input type="checkbox"/> kV	L1	L2	L3	
Switchgear _____	Cubicle _____	VT _____	Terminals	Volts <input type="checkbox"/> V <input type="checkbox"/> kV	L1	L2	L3	
			Phase sequence		<input type="checkbox"/> Clockwise		<input type="checkbox"/> Counterclockwise	
			Terminals	Volts <input type="checkbox"/> V <input type="checkbox"/> kV	L1	L2	L3	

REMARKS :

INSPECTORS	CONTRACTOR	PMC	OWNER	THIRD PARTY
NAME				
SIGNATURE				
DATE				











PROJECT:

OWNER:

QUALITY CONTROL REPORT **1600-P58**

PROJ. No.: REV. SH. \_\_\_ OF \_\_\_

**ELECTRICAL EQUIPMENT - PRECOMMISSIONING  
UPS FUNCTIONAL TEST**

CONTRACTOR : **1600-P58 N°**

**GENERAL DATA**

Location / area:		System / subsystem:		Date (dd/mm/yy):	
Item:	Manufacturer:	Type:		Serial no.:	
Rated kVA:	Input voltage: V Φ	Output voltage: V Φ		Frequency: Hz	
Redundant system: <input type="checkbox"/> Yes <input type="checkbox"/> No		Ref. drawings:			
Multimeter manuf./type:		Test voltage: V	Calibration date:		Recalibration date:

**SUPPLY CHARACTERISTICS**

Power supply:  Permanent  Temporary Phase rotation:  Clockwise  Counterclockwise Frequency: Hz

**INPUT VOLTAGES**

	Set value		Actual value		Acceptable	
Input voltage – Phase L1 to L2 (Mains 1 / 2)	V <sub>1</sub> /	V <sub>2</sub>	V <sub>1</sub> /	V <sub>2</sub>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Input voltage – Phase L2 to L3 (Mains 1 / 2)	V <sub>1</sub> /	V <sub>2</sub>	V <sub>1</sub> /	V <sub>2</sub>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Input voltage – Phase L1 to L3 (Mains 1 / 2)	V <sub>1</sub> /	V <sub>2</sub>	V <sub>1</sub> /	V <sub>2</sub>	<input type="checkbox"/> Yes	<input type="checkbox"/> No

**MAIN SETTINGS**

	Set value		Actual value		Acceptable	
Float charge voltage ( _____ V / cell)	VDC		VDC		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Boost charge voltage ( _____ V / cell)	VDC		VDC		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Ripple voltage			VAC		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Ripple current			A		<input type="checkbox"/> Yes	<input type="checkbox"/> No
AC undervoltage alarm / trip	VAC /	VAC	VAC /	VAC	<input type="checkbox"/> Yes	<input type="checkbox"/> No
AC overvoltage alarm / trip	VAC /	VAC	VAC /	VAC	<input type="checkbox"/> Yes	<input type="checkbox"/> No
DC undervoltage alarm / trip	VDC /	VDC	VDC /	VDC	<input type="checkbox"/> Yes	<input type="checkbox"/> No
DC overvoltage alarm / trip	VDC /	VDC	VDC /	VDC	<input type="checkbox"/> Yes	<input type="checkbox"/> No

**REMOTE ALARM SIGNALIZATION**

	Contact type		Testing		Contact type		Testing	
Common alarm	<input type="checkbox"/> NO	<input type="checkbox"/> NC	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> NO	<input type="checkbox"/> NC	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
Battery discharging	<input type="checkbox"/> NO	<input type="checkbox"/> NC	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> NO	<input type="checkbox"/> NC	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail

**1 – Functional Test**

			Testing	
Load transfer from UPS to static bypass	Load value	kW	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
Load transfer from static bypass to UPS	Load value	kW	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
Loss and restore of normal power supply			<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
Analogue transducers output			<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
Earth fault			<input type="checkbox"/> Pass	<input type="checkbox"/> Fail

REMARKS :

REMARKS :

INSPECTORS	CONTRACTOR	PMC	OWNER	THIRD PARTY
NAME				
SIGNATURE				
DATE				



PROJECT:

OWNER:

QUALITY CONTROL REPORT **1600-P59** PROJ. No.: REV. SH. \_\_\_ OF \_\_\_

ELECTRICAL EQUIPMENT - PRECOMMISSIONING DC SYSTEM FUNCTIONAL TEST CONTRACTOR : **1600-P59 N°**

**GENERAL DATA**

Location / area: System / subsystem: Date (dd/mm/yy):  
 Item: Manufacturer: Type: Serial no.:  
 Rated kW: Input voltage: V  $\Phi$  Output voltage: VDC Ref. drawings.:  
 Redundant system:  Yes  No Grounding:  Isolated  Negative grounded  Other \_\_\_\_\_  
 Multimeter manuf./type: Test voltage: V Calibration date: Recalibration date:

**SUPPLY CHARACTERISTICS**

Power supply:  Permanent  Temporary Phase rotation:  Clockwise  Counterclockwise Frequency: Hz

**INPUT VOLTAGES**

	Set value		Actual value		Acceptable	
Input voltage – Phase L1 to L2 (Mains 1 / 2)	V <sub>1</sub>	V <sub>2</sub>	V <sub>1</sub>	V <sub>2</sub>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Input voltage – Phase L2 to L3 (Mains 1 / 2)	V <sub>1</sub>	V <sub>2</sub>	V <sub>1</sub>	V <sub>2</sub>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Input voltage – Phase L1 to L3 (Mains 1 / 2)	V <sub>1</sub>	V <sub>2</sub>	V <sub>1</sub>	V <sub>2</sub>	<input type="checkbox"/> Yes	<input type="checkbox"/> No

**MAIN SETTINGS**

	Set value		Actual value		Acceptable	
Float charge voltage ( _____ V / cell)		VDC		VDC	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Boost charge voltage ( _____ V / cell)		VDC		VDC	<input type="checkbox"/> Yes	<input type="checkbox"/> No
AC undervoltage alarm / trip	VAC	VAC	VAC	VAC	<input type="checkbox"/> Yes	<input type="checkbox"/> No
AC overvoltage alarm / trip	VAC	VAC	VAC	VAC	<input type="checkbox"/> Yes	<input type="checkbox"/> No
DC undervoltage alarm / trip	VDC	VDC	VDC	VDC	<input type="checkbox"/> Yes	<input type="checkbox"/> No
DC overvoltage alarm / trip	VDC	VDC	VDC	VDC	<input type="checkbox"/> Yes	<input type="checkbox"/> No

**REMOTE ALARM SIGNALIZATION**

	Contact type		Testing		Contact type		Testing	
Common alarm	<input type="checkbox"/> NO	<input type="checkbox"/> NC	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> NO	<input type="checkbox"/> NC	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
Battery discharging	<input type="checkbox"/> NO	<input type="checkbox"/> NC	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> NO	<input type="checkbox"/> NC	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail

**1 - Functional Test**

	Testing	
Loss and restore of normal power supply	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
Analogue transducers output	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
Earth fault	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail

REMARKS :

INSPECTORS	CONTRACTOR	TECHNIP	OWNER	THIRD PARTY
NAME				
SIGNATURE				
DATE				



PROJECT:

OWNER:

QUALITY CONTROL REPORT **1600-P60**

PROJ. No.:

REV.

SH. \_\_\_ OF \_\_\_

**ELECTRICAL EQUIPMENT - PRECOMMISSIONING  
BATTERIES CHARGE**

CONTRACTOR:

**1600-P60 N° \_\_\_\_\_**

**GENERAL DATA**

Location / area: System / subsystem: Date (dd/mm/yy):

Battery type: Lead-acid wet cell type Lead-acid valve regulated Nickel Cadmium

Battery bank item: Number of elements: Ref. drawings:

Battery manufacturer: Battery type: Capacity / Hours:

**1 - Batteries Charge**

Date		Time		Charging current		DC A		Charge voltage		DC V		Initial charging		<input type="checkbox"/> Yes	<input type="checkbox"/> No
CELL NO.	CELL VOLT AGE V	TEMP °C	SPECIFIC GRAVITY	CELL NO.	CELL VOLT AGE V	TEMP °C	SPECIFIC GRAVITY	CELL NO.	CELL VOLT AGE V	TEMP °C	SPECIFIC GRAVITY	CELL NO.	CELL VOLT AGE V	TEMP °C	SPECIFIC GRAVITY
1				30				59				88			
2				31				60				89			
3				32				61				90			
4				33				62				91			
5				34				63				92			
6				35				64				93			
7				36				65				94			
8				37				66				95			
9				38				67				96			
10				39				68				97			
11				40				69				98			
12				41				70				99			
13				42				71				100			
14				43				72				101			
15				44				73				102			
16				45				74				103			
17				46				75				104			
18				47				76				105			
19				48				77				106			
20				49				78				107			
21				50				79				108			
22				51				80				109			
23				52				81				110			
24				53				82				111			
25				54				83				112			
26				55				84				113			
27				56				85				114			
28				57				86				115			
29				58				87				116			

Ripple current measurement  Not required  Required A

Note: Prepare one quality control form for each time interval

REMARKS :

INSPECTORS	CONTRACTOR	TECHNIP	OWNER	THIRD PARTY
NAME				
SIGNATURE				
DATE				

 	PROJECT:		
	OWNER:		
QUALITY CONTROL REPORT	1600-P61	PROJ. No.:	REV. SH. ___ OF ___
ELECTRICAL EQUIPMENT - PRECOMMISSIONING BATTERIES DISCHARGE		CONTRACTOR:	1600-P61 N° _____

### GENERAL DATA

Location / area:	System / subsystem:	Date (dd/mm/yy):
Battery type:	Lead-acid wet cell type	Lead-acid valve regulated
Battery bank item:	Number of elements:	Ref. drawings:
Battery manufacturer:	Battery type:	Capacity / Hours:

### 1 - Batteries Discharge

Date		Time		Discharge current		DC A		Battery voltage		DC V					
CELL NO.	CELL VOLT AGE	TEMP °C	SPECIFIC GRAVITY	CELL NO.	CELL VOLT AGE	TEMP °C	SPECIFIC GRAVITY	CELL NO.	CELL VOLT AGE	TEMP °C	SPECIFIC GRAVITY	CELL NO.	CELL VOLT AGE	TEMP °C	SPECIFIC GRAVITY
1				30				59				88			
2				31				60				89			
3				32				61				90			
4				33				62				91			
5				34				63				92			
6				35				64				93			
7				36				65				94			
8				37				66				95			
9				38				67				96			
10				39				68				97			
11				40				69				98			
12				41				70				99			
13				42				71				100			
14				43				72				101			
15				44				73				102			
16				45				74				103			
17				46				75				104			
18				47				76				105			
19				48				77				106			
20				49				78				107			
21				50				79				108			
22				51				80				109			
23				52				81				110			
24				53				82				111			
25				54				83				112			
26				55				84				113			

27				56				85				114			
28				57				86				115			
29				58				87				116			
Ripple current measurement									<input type="checkbox"/> Not required			<input type="checkbox"/> Required			A
Note: Prepare one quality control form for each time interval															
REMARKS :															
<b>INSPECTORS</b>				<b>CONTRACTOR</b>				<b>TECHNIP</b>				<b>OWNER</b>			<b>THIRD PARTY</b>
<b>NAME</b>															
<b>SIGNATURE</b>															
<b>DATE</b>															



PROJECT:

OWNER:

QUALITY CONTROL REPORT

1600-P62

PROJ. No.:

REV.

SH. \_\_\_ OF \_\_\_

ELECTRICAL EQUIPMENT - PRECOMMISSIONING  
VARIABLE FREQUENCY DRIVE FUNCTIONAL TEST

CONTRACTOR :

1600-P62 N°

## GENERAL DATA

Location / area:	System / subsystem:	Date (dd/mm/yy):
Manufacturer:	Type:	Serial no.:
Rated kW:	Input voltage: V $\Phi$	Torque <input type="checkbox"/> Constant <input type="checkbox"/> Variable
Bypass switch:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Ref. drawings:
Multimeter manuf./type:	Test voltage: V	Calibration date:
		Recalibration date:

## SUPPLY CHARACTERISTICS

Power supply:  Permanent  Temporary Phase rotation:  Clockwise  Counterclockwise Frequency: Hz

## INPUT VOLTAGES

	Set value	Actual value	Acceptable	
Input voltage – Phase L1 to L2	V	V	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Input voltage – Phase L2 to L3	V	V	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Input voltage – Phase L1 to L3	V	V	<input type="checkbox"/> Yes	<input type="checkbox"/> No

## PARAMETER SETTINGS

Motor parameters	Voltage	V	Current	A	Frequency	Hz	Speed	rpm	Power	kW
Limits	Max speed		rpm	Min speed		rpm	Max current			A
	Max torque		%	Min torque		%				
Acceleration	Time 1	s	Time 2	s	Deceleration	Time 1	s	Time 2	s	

## DIGITAL I/O

Input type	Contact type		Testing		Output type	Contact type		Testing	
Start	<input type="checkbox"/> NO	<input type="checkbox"/> NC	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Ready	<input type="checkbox"/> NO	<input type="checkbox"/> NC	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
Stop	<input type="checkbox"/> NO	<input type="checkbox"/> NC	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Running	<input type="checkbox"/> NO	<input type="checkbox"/> NC	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
					Fault	<input type="checkbox"/> NO	<input type="checkbox"/> NC	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail

## ANALOGUE I/O

Input type	Min	Max	Testing		Output type	Min	Max	Testing	
Reference speed			<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Speed feedback			<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
					Current			<input type="checkbox"/> Pass	<input type="checkbox"/> Fail

## 1 - Functional Test

Type	Testing		Type	Testing	
Cooling fan rotation direction	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Control from remote	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
I/O connections	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Remote alarm signalization	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
ID run	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Voltage dip ride-through	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
Test run	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail			

## SOFTWARE BACKUP

Type	Provided		Type	Provided	
Parameters loaded	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Backup copy	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Reset of fault buffer	<input type="checkbox"/> Yes	<input type="checkbox"/> No			

REMARKS :

INSPECTORS	CONTRACTOR	TECHNIP	OWNER	THIRD PARTY
NAME				
SIGNATURE				
DATE				



PROJECT:

OWNER:

QUALITY CONTROL REPORT

1600-P63

PROJ. No.:

REV.

SH. \_\_\_ OF \_\_\_

ELECTRICAL EQUIPMENT - PRECOMMISSIONING  
ELECTRICAL HEAT TRACING SYSTEM

CONTRACTOR :

1600-P63 N°

**GENERAL DATA**

Location / area:

System / subsystem:

Date (dd/mm/yy):

**TRACING CABLE DATA**

Panel tag:

Breaker/Feeder tag:

Heater/Circuit tag:

Line / instrument / equipment tag:

Design length:

m

Installed length:

m

Normal line / instrument / equipment temperature:

°C

Maintain line / instrument / equipment temperature:

°C

**1 - Heaters Performance**

Data	Volts AC		Current in amps				
	Panel	Field	Single phase	Three phase			
			L	L1	L2	L3	N
Startup							
After 5 minutes							
Ambient temperature at time of test							°C
Pipe / instrument / equipment temperature at time of test							°C
Calculated watts per unit of length (V x A / length)							W/m

**2 - Temperature Control**

Heating controller type	<input type="checkbox"/> Ambient sensing	<input type="checkbox"/> Pipe sensing	Set point	°C
High-limit controller	Type	Location	Set point	°C
Heating controls calibrated			<input type="checkbox"/> Yes	<input type="checkbox"/> No
Heating controls operation verified			<input type="checkbox"/> Yes	<input type="checkbox"/> No

**3 - Alarms / Monitoring / Ground Fault**

Temperature	Settings	High	°C	Low	°C	Operation verified	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Heater current	Settings	High	°C	Low	°C	Operation verified	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Ground fault current	Settings				mA	Operation verified	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Ground fault current protection	Settings				mA	Operation verified	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Loss of voltage						Operation verified	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Signalling lamps						Operation verified	<input type="checkbox"/> Yes	<input type="checkbox"/> No

REMARKS :


INSPECTORS	CONTRACTOR	TECHNIP	OWNER	THIRD PARTY
NAME				
SIGNATURE				
DATE				



PROJECT:

OWNER:

QUALITY CONTROL REPORT

1600-P64

PROJ. No.:

REV.

SH. \_\_\_ OF \_\_\_

ELECTRICAL EQUIPMENT - PRECOMMISSIONING  
CATHODIC PROTECTION - GALVANIC ANODE POTENTIAL SURVEY

CONTRACTOR :

1600-P64 N°  
\_\_\_\_\_

**GENERAL DATA**

Location / area:	System / subsystem:	Date (dd/mm/yy):
Structure(s) protected:	Reference drawings:	
Anodes type:	Anodes material:	Number of anodes:
Anodes weight:                      kg	Anodes length:                                      m	Anodes diameter:                                      cm
Installation date (dd/mm/yy):	Number of test stations:	

**1 - Readings**

Soil conditions:

#	Location	Ref. cell location	Structure to soil / water (V)	Remote structure to soil / water (V)	Anode to soil / water (V)	Anode to structure (mA)	Remarks
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

REMARKS :				
<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>TECHNIP</b>	<b>OWNER</b>	<b>THIRD PARTY</b>
<b>NAME</b>				
<b>SIGNATURE</b>				
<b>DATE</b>				

 	PROJECT:		
	OWNER:		
QUALITY CONTROL REPORT	<b>1600-P65</b>	PROJ. No.:	REV. SH. ___ OF ___
<b>ELECTRICAL EQUIPMENT - PRECOMMISSIONING CATHODIC PROTECTION – IMPRESSED CURRENT ANODE POTENTIAL SURVEY</b>	CONTRACTOR:		<b>1600-P65 N°</b> _____

GENERAL DATA							
Location / area:		System / subsystem:			Date (dd/mm/yy):		
Rectifier tag:		Manufacturer / Type:			Serial no.:		
AC input:	Current:	A	Voltage:	V	Phases:	Frequency:	Hz
DC output:	Current:	A	Voltage:	V	Shunt size:	mV	A
Anodes type:		Anodes material:			Number of anodes:		
Anodes weight: kg		Anodes length: m			Anodes diameter: cm		
Installation date (dd/mm/yy):				Number of test stations:			

1 - Readings			
Rectifier readings:	Current:	A	Voltage: V Variac: %

Soil conditions:								
#	Location	Ref. cell location	Native (mV)	On (mV)	Inst Off (mV)	On/Off Shift	100 mV Shift	Remarks
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								

18								
19								
20								
21								
22								
23								
24								
25								

Note: On (V) and Off (V) are the structure to electrolyte potentials to a 

Cu/CuSO <sub>4</sub>
----------------------

Ag/AgCl reference electrode.
------------------------------

REMARKS :


INSPECTORS	CONTRACTOR	TECHNIP	OWNER	THIRD PARTY
NAME				
SIGNATURE				
DATE				



PROJECT:

OWNER:

QUALITY CONTROL REPORT **1600-P66**

PROJ. No.:

REV.

SH. \_\_\_ OF \_\_\_

ELECTRICAL EQUIPMENT - PRECOMMISSIONING  
SYNCHRONOUS MACHINES  
LUBRICATION, AIR GAP AND COUPLING ALIGNMENT

CONTRACTOR:

1600-P66 N° \_\_\_\_\_

**GENERAL DATA**

Location / area: System / subsystem: Date (dd/mm/yy):  
Motor tag: Manufacturer: Serial no.:

**1 - Lubrication for Synchronous Machines**

Lubrication (ref. to QCR-6800.P58)	Accepted		Notes			
	Yes	No	Manuf.	Type	Date	Qty
Grease (grease lubricated bearings)	<input type="checkbox"/>	<input type="checkbox"/>	Manuf.	Type	Date	Qty
Oil (oil lubricated bearings)	<input type="checkbox"/>	<input type="checkbox"/>	Manuf.	Type	Sight glass level marking	
Oil filters and pumps	<input type="checkbox"/>	<input type="checkbox"/>	Date	Qty		

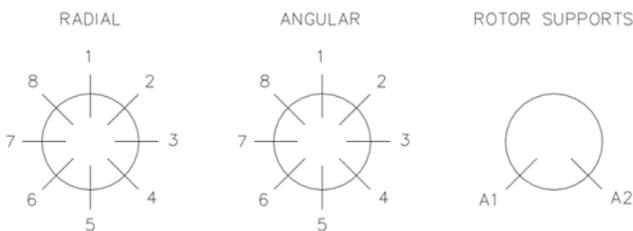
**2 - Air Gap Measurement for Synchronous Machines**

Instrument manuf.:	Type:	Calibration date:	Recalibration date:				
Use odd numbers for pedestal bearings and even numbers for flanged bearings							
Machine DE							
1	mm	2	mm	3	mm	4	mm
5	mm	6	mm	7	mm	8	mm
Machine NDE							
1	mm	2	mm	3	mm	4	mm
5	mm	6	mm	7	mm	8	mm
Exciter NDE							
1	mm	2	mm	3	mm	4	mm
5	mm	6	mm	7	mm	8	mm
Acceptance criteria:	Acceptable		<input type="checkbox"/> Yes <input type="checkbox"/> No				



**3 - Coupling Alignment and Rotor Supports Distances for Synchronous Machines**

Instrument manuf.:	Type:	Calibration date:	Recalibration date:				
Use odd numbers for pedestal bearings and even numbers for flanged bearings							
Radial alignment							
1	mm	2	mm	3	mm	4	mm
5	mm	6	mm	7	mm	8	mm
Angular alignment							
1	mm	2	mm	3	mm	4	mm
5	mm	6	mm	7	mm	8	mm
Rotor axial positions							
P1	mm	P2	mm	Shaft ends axial dist.		mm	
Rotor supports distance		A1	mm	A2	mm		
Acceptance criteria:	Acceptable		<input type="checkbox"/> Yes <input type="checkbox"/> No				



**Magnetic center identification and marking**

Coarse

Fine

REMARKS :

INSPECTORS	CONTRACTOR	TECHNIP	OWNER	THIRD PARTY
NAME				
SIGNATURE				
DATE				









PROJECT:

OWNER:

QUALITY CONTROL REPORT **1600-P67**

PROJ. No.: REV. SH. 2 OF 2

ELECTRICAL EQUIPMENT - PRECOMMISSIONING  
ROTATING EQUIPMENT TEST

Contractor : **1600-P67 N°**

**GENERAL DATA**

Location / area:		System / subsystem:		Date (dd/mm/yy):	
Motor tag:		Manufacturer:		Serial no.:	
Substation:		Switchgear:		Column/Row:	
				Motor rated current: A	
Time (hh/mm):		Amb. temperature:		Humidity: %	
		<input type="checkbox"/> °C <input type="checkbox"/> °F			

**3 - 4 Hours No-Load Running Test**

Time	Volts (start)	Current (A)			Bearing temperature		Vibration (mm/s, RMS)						Normal noise	Abnormal noise	RPM (if required)
		Phase L1	Phase L2	Phase L3	<input type="checkbox"/> °C <input type="checkbox"/> °F		DE horiz.	DE vert.	DE axial	NDE horiz.	NDE vert.	NDE axial			
					DE	NDE									
1'															
30'															
1h															
1h 30'															
2h															
2h 30'															
3h															
3h 30'															
4h															

Cooling air temperature (4h)	Inlet _____ <input type="checkbox"/> °C <input type="checkbox"/> °F	Outlet _____ <input type="checkbox"/> °C <input type="checkbox"/> °F
Cooling water temperature (4h)	Inlet _____ <input type="checkbox"/> °C <input type="checkbox"/> °F	Outlet _____ <input type="checkbox"/> °C <input type="checkbox"/> °F
Acceleration time: _____ s	Test results acceptable <input type="checkbox"/> Yes <input type="checkbox"/> No	

REMARKS :

INSPECTORS	CONTRACTOR	TECHNIP	OWNER	THIRD PARTY
NAME				
SIGNATURE				
DATE				





PROJECT:

OWNER:

QUALITY CONTROL REPORT **1600-P68**

PROJ. No.: REV. SH. \_\_\_ OF \_\_\_

ELECTRICAL EQUIPMENT - PRECOMMISSIONING  
LIGHTING/RECEPTACLE/AIRCRAFT DISTRIBUTION PANEL WITH  
RELEVANT CABLES AND FEEDER UNIT & WELDING SOCKET

CONTRACTOR : **1600-P68 N°**

**GENERAL DATA**

Location / area:	System / subsystem:	Date (dd/mm/yy):
Manufacturer:	Type:	Serial no.:
Rated voltage:	Rated current:	Rated SC kA:
Tag number:	Ref. drawings:	

1 - Pre-energization checks		Accepted		
Step	Activity	Yes	No	NA
A11.	Grounding connection of the panel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A12.	Connection tightness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A13.	Power supply available on protective devices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A14.	Relays set and locking / racking provisions applied where required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>2 - Energization</b>	Date (dd/mm/yy):	Time (hh:mm)
-------------------------	------------------	--------------

3 - Post-energization checks		Accepted		
Step	Activity	Yes	No	NA
C26.	Panel indication lamps (voltage presence, heater on/off, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C27.	Voltage and frequency readings (L1, L2, L3) on relay / meter display	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C28.	Relays pickup	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C29.	Voltage readings (L1, L2, L3) and phase sequence on busbar terminals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C30.	Flasher alarm LEDs (only for aircraft warning lighting fixtures)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C31.	Space heater and relative thermostat operation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C32.	Welding socket operation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C33.	Beacons operation as steady burning/flashing (only for aircraft warning lighting fixtures)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C34.	As-built block diagram attached to this form	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C35.	Visual inspection of all lighting fixtures energized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Protective devices readings**

Panel _____	Relay _____	Display	Volts <input type="checkbox"/> V <input type="checkbox"/> kV	L1	L2	L3
		Terminals	Volts <input type="checkbox"/> V <input type="checkbox"/> kV	L1	L2	L3
		Phase sequence		<input type="checkbox"/> Clockwise	<input type="checkbox"/> Counterclockwise	
Panel _____	Relay _____	Display	Volts <input type="checkbox"/> V <input type="checkbox"/> kV	L1	L2	L3
		Terminals	Volts <input type="checkbox"/> V <input type="checkbox"/> kV	L1	L2	L3
		Phase sequence		<input type="checkbox"/> Clockwise	<input type="checkbox"/> Counterclockwise	

CIRCUIT NUMBER	TOTAL POWER [W]	STARTING CURRENT [A]	FULL LOAD CURRENT [A]	CIRCUIT NUMBER	TOTAL POWER [W]	STARTING CURRENT [A]	FULL LOAD CURRENT [A]
1				15			
2				16			
3				17			
4				18			
5				19			
6				20			
7				21			
8				22			
9				23			
10				24			
11				25			
12				26			
13				27			
14				28			

INSPECTORS	CONTRACTOR	TECHNIP	OWNER	THIRD PARTY
NAME				
SIGNATURE				
DATE				



PROJECT:

OWNER:

QUALITY CONTROL REPORT

1600-P69

PROJ. No

REV.

SH. \_\_\_ OF \_\_\_

ELECTRICAL EQUIPMENT - PRECOMMISSIONING  
LIGHTING SYSTEM ILLUMINATION LEVEL  
MEASUREMENT

CONTRACTOR :

1600-P69 N°  
\_\_\_\_\_

**GENERAL DATA**

Location / area:

System / subsystem:

Date (dd/mm/yy):

Indoor location

Outdoor location

Ref. drawing:

Rev.

Starting time (hh.mm)

Weather conditions:

**1 - Measures**

Luxmeter manuf./type:

Sensitivity:

Calibration date:

Recalibration date:

Pt.	Illumination level		Plane height (mm)	Notes	Pt.	Illumination level		Plane height (mm)	Notes
	Expected	Measured				Expected	Measured		
1					26				
2					27				
3					28				
4					29				
5					30				
6					31				
7					32				
8					33				
9					34				
10					35				
11					36				
12					37				
13					38				
14					39				
15					40				
16					41				
17					42				
18					43				
19					44				
20					45				
21					46				
22					47				
23					48				
24					49				
25					50				

Acceptable

Yes

No

Note: A key plan showing the location of the numbered measuring points shall be attached to this form.

REMARKS :

<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>TECHNIP</b>	<b>OWNER</b>	<b>THIRD PARTY</b>
<b>NAME</b>				
<b>SIGNATURE</b>				
<b>DATE</b>				





PROJECT:

OWNER:

QUALITY CONTROL REPORT **1600-P71**

PROJ. No.: REV. SH. \_\_\_\_ OF \_\_\_\_

**ELECTRICAL EQUIPMENT - PRECOMMISSIONING  
HVAC SYSTEM**

CONTRACTOR : **1600-P71 N° \_\_\_\_\_**

**GENERAL DATA**

Location / area:	System / subsystem:	Date (dd/mm/yy):
Manufacturer:	Type:	Serial no.:
Rated voltage:	Rated current:	Rated SC kA:
Tag number:	Ref. drawings:	Building:

**EQUIPMENTS LIST**

DDC: control panel	MCC: power panel	AHU: Air Handling Unit	ACCU: Air Condition. Condensing Unit
PACU: Packaged Air Condition. Unit	CFU: Chemical Filter Unit	DH: Duct Heater	FD: Fire Damper
DPS: Differential Pressure Switch	DPT: Differential Pressure Transmitter	EF/BF: Exhaust/Bleed Fan	CF/SF: CFU/Supply Fan
STB: Sand Trap Box	SU: Split Unit	SH: Steam Humidifier	TT: Temperature Transmitter
MD: Motorized Damper	RHT: Relative Humidity Transmitter	Pre / bag filter	Other

**INSTRUMENTS LIST**

N.	TAG	LOCAT.	SET												
1				11				21				31			
2				12				22				32			
3				13				23				33			
4				14				24				34			
5				15				25				35			
6				16				26				36			
7				17				27				37			
8				18				28				38			
9				19				29				39			
10				20				30				40			

1 - Pre-energization checks		Accepted		
Step	Activity	Yes	No	NA
A20.	Grounding connection of the panels			
A21.	Connection tightness			
A22.	Selector switches in "off" position (off/auto/manual)			
A23.	Cleanliness of the air filters and of the work areas for the equipments start-up			
A24.	Manual / motorized volume control dampers position			
A25.	As-built auto / manual operation flow chart and process air flow diagram attached to this form			
A26.	Power supply available on protective devices			
A27.	Relays set and locking / racking provisions applied where required			

**2 - Energization** Date (dd/mm/yy): Time (hh:mm)

3 - Post-energization checks		Accepted		
Step	Activity	Yes	No	NA
C44.	Voltage and frequency readings (L1, L2, L3) on relay / meter display			
C45.	Voltage readings (L1, L2, L3) and phase sequence on busbar terminals			
C46.	Absorbed current readings (L1, L2, L3)			
C47.	HVAC - I/O signals list			
C48.	Panel indication lamps for all equipments (voltage presence, on, off, run, trip, etc.)			
C49.	Touch screen control panel indications for all equipments (voltage presence, on, off, run, trip, etc.)			



1. PURPOSE OF INSPECTION \_\_\_\_\_

QCP \_\_\_\_\_ CHECK STEP \_\_\_\_\_ AREA \_\_\_\_\_

2. ITEM IDENTIFICATION \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. TYPE OF INSPECTION \_\_\_\_\_ TEST   
EXAMINATION   
CHECK

4. INSPECTION RESULT: CONFORMING   
NOT CONFORMING   
WITH REMARKS

5. REMARKS \_\_\_\_\_  
\_\_\_\_\_

QCR ACCEPTANCE				
INSPECTORS	CONTRACTOR	TECHNIP	OWNER	THIRD PARTY
NAME				
SIGNATURE				
DATE				

 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP-COMMISSIONING OF ELECTRICAL EQUIPMENT</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1600-052	<b>Rev. No.</b> A	Page 1 of 2

<p><b>QUALITY CONTROL PLAN COMMISSIONING ELECTRICAL EQUIPMENT</b></p>
---

TYPE OF QUALITY CONTROL REPORT	CERTIFICATION EXTENT
QCF 1600.C51	ROTATING EQUIPMENT LOAD RUNNING TEST - REFER NOTE (1)
W12	SINGLE REPORT PER EACH TEST

**REFERENCE DOCUMENTS:**

- DRAWINGS

**LEGENDS**

- H = HOLD (RFI required - Work stop for inspection)
- W = WITNESS (RFI required)
- WC = 100 % SUPERVISION AND EXAMINATION BY CONTRACTOR.
- P = PREPARATION.
- S = SURVEILLANCE (No RFI)
- R = REVIEW OF REPORTS
- N.A. = NOT APPLICABLE
- A = AUTHORIZATION / APPROVAL
- IFA = ISSUED FOR AUTHORIZATION/APPROVAL
- INFO = FOR INFORMATION
- ! = WARNING (control of document revision status)

						
A	21.10.2019	ISSUED FOR INFORMATION	SMP	PKP	LA/ANJ	JMC
<b>REV</b>	<b>DATE</b>	<b>DESCRIPTION</b>	<b>PREPARED</b>	<b>CHECKED</b>	<b>APPROVED</b>	<b>AUTHORIZED</b>

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP-COMMISSIONING OF ELECTRICAL EQUIPMENT</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1600-052	<b>Rev. No.</b> A	Page 2 of 2

S.No	CHECK AND INSPECTION ITEM	QCF CODE	SITE INSPECTION EXTENT		NOTES
			CONTR.	TECHNIP	
<b>A)</b>	<b>ROTATING EQUIPMENT TEST</b>				
A.1	LOAD RUNNING TEST	1600-C51	W/C	W/R	
2	MISCELLANEOUS INSPECTION FORM	W12	P	W/R	(1)

NOTES: <sup>(1)</sup> SINGLE CERTIFICATE FOR EACH ITEM

#### GENERAL NOTES

- 1 THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THEJOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY TECHNIP AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN- CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF TECHNIP HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.
- 2 CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT TO TECHNIP/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.

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PROJECT:  
OWNER:

QUALITY CONTROL FORM **1600-C51** PROJ. No.: QCF REV. SH. 1 OF 1  
**ELECTRICAL EQUIPMENT – COMMISSIONING ROTATING EQUIPMENT TEST** CONTRACTOR: **1600-C51 N°** \_\_\_\_\_

**GENERAL DATA**

Location / Area : System / Subsystem: Date (dd/mm/yy):  
 Motor tag: Manufacturer: Serial no.:  
 Substation: Switchgear: Column / Row: Motor rated current: A  
 Time (hh/mm): Amb. Temperature:  °C  °F Humidity: %

**D – LOAD RUNNING TEST**

Time	Volts (start)	Current (A)			Bearing temperature		Vibration (mm/s, RMS)						Normal noise	Abnormal noise	RPM (if required)
		Phase L1	Phase L2	Phase L3	<input type="checkbox"/> °C	<input type="checkbox"/> °F	DE DE	DE DE	DE DE	NDE NDE	NDE NDE	NDE NDE			
					DE	NDE	horiz	Vert.	Axial	Horiz	Vert.	axial			

Cooling air temperature Inlet  °C  °F Outlet  °F  °C  
 Cooling water temperature Inlet  °C  °F Outlet  °F  °C  
 Acceleration time: s Test results acceptable  Yes  No

REMARKS

INSPECTIONS	CONTRACTOR	PMC	OWNER	THRID PARTY
NAME				
SINGATURE				
DATE				

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PROJECT:

OWNER:

QUALITY CONTROL FORM

W 12

PROJ. No.:

QCF REV.

SH. 1  
OF 1

INSPECTION FORM

CONTRACTOR:

W 12 N° \_\_\_\_

1. PURPOSE OF INSPECTION :

QCP :

CHECKSTEP :

AREA :

UNIT :

2. ITEM IDENTIFICATION ;

3. TYPE OF INSPECTION :

TEST :

EXAMINATION :

CHECK :

4. INSPECTION RESULT:

CONFIRMING :

NOT CONFORMING :

WITH REMARKS :

5. REMARKS :

QCP ACCEPTANCE

INSPECTORS	CONTRACTOR	PMC	OWNER	THIRD PARTY
NAME				
SIGNATURE				
DATE				

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION GROUNDING AND LIGHTNING SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1610-001	<b>Rev. No.</b> A	Page 1 of 8

**QUALITY CONTROL PLAN**  
**ELECTRICAL INSTALLATION**  
**GROUNDING AND LIGHTNING SYSTEM**

<b>TYPE OF QUALITY CONTROL REPORT</b>	<b>CERTIFICATION EXTENT</b>
EFR 01A	Grounding and Lightning System – Installation of Underground Grounding Conductor Summary Report
EFR 01B	Grounding and Lightning System - Installation & Connect. of Rod with Inspection Pit Summary Report
EFR 01C	Grounding and Lightning System - Installation. & Connect. of Rod without Inspection Pit Summary Report
EFR 01D	Grounding and Lightning System - Installation of Grounding Bar Summary Report
EFR 01E	Grounding and Lightning System - Installation of Overhead Conductor Summary Report
EFR 01F	Grounding and Lightning System - Equipment Grounding Connection Summary Report
EFR 01G	Grounding and Lightning System - Installation of Grounding Plate Summary Report
EFR 01H	Grounding and Lightning System - Installation of Lightning Protection System Summary Report
EFR 01I	Grounding and Lightning System - Grounding Resistance Measurement
EFR 01J	Grounding and Lightning System - Grounding Conductor Continuity Test

						
A	21.10.2019	ISSUE FOR INFORMATION	SMP	PKP	LA/ANJ	JMC
<b>REV.</b>	<b>DATE</b>	<b>STATUS</b>	<b>WRITTEN BY</b>	<b>CHECKED BY</b>	<b>APPROVED BY</b>	<b>AUTHOR. BY</b>

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**REFERENCE DOCUMENTS:**

- DRAWINGS

**LEGENDS**

H	=	HOLD (RFI required - Work stop for inspection)
W	=	WITNESS (RFI required)
WC	=	100 % SUPERVISION AND EXAMINATION BY CONTRACTOR.
P	=	PREPARATION.
S	=	SURVEILLANCE (No RFI)
R	=	REVIEW OF REPORTS
N.A.	=	NOT APPLICABLE
A	=	AUTHORIZATION / APPROVAL
IFA	=	ISSUED FOR AUTHORIZATION/APPROVAL
INFO	=	FOR INFORMATION
!	=	WARNING (control of document revision status)

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**QUALITY CONTROL PLAN**  
ELECTRICAL INSTALLATION  
GROUNDING AND LIGHTNING SYSTEM

**QUALITY CONTROL ACTIVITIES**

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>A</b>	<b>PRELIMINARY ACTIVITIES</b>				
A1	CHECK OF CONTRACTOR DRAWINGS REVISION STATUS	NA	!	!	
A2	CONTRACTOR TECHNICAL SPECIFICATION AND PROCEDURE	NA	INFO	!	
A3	CONTRACTOR'S METHOD OF STATEMENT (IF REQUIRED)	NA	P	A	(1)
<b>B</b>	<b>MATERIALS - BEFORE AND AFTER INSTALLATION</b>				
<b>B1</b>	<b>IDENTIFICATION AND PRESERVATION STATUS</b>	NA		R	
<b>C01</b>	<b>INSTALLATION OF UNDERGROUND GROUNDING CONDUCTOR</b>				
<b>C01-A</b>	<b>Conductor laying</b>				
C01-A1	Trench/duct characteristics, location, burial depth and installation check Routing	NA	W/C	W/R	
C01-A2	acc. to drawings and check of interference with other buried systems Check if	NA	W/C	W/R	
C01-A3	the material is damaged and its conformance to specification, drawings	NA	W/C	W/R	
C01-A4	Grounding conductor type, material, size and insulation verified	NA	W/C	W/R	
C01-A5	Conductor laid properly and protected where required	NA	W/C	W/R	
C01-A6	Conductive backfill installed (if applicable)	NA	W/C	W/R	
<b>C01-B</b>	<b>Conductor joints and derivations</b>				
C01-B1	Thermal connections proper execution without cold joints or burnouts	NA	W/C	W/R	
C01-B2	Thermal connections protective compound / wrap application	NA	W/C	W/R	
C01-B3	Check of proper execution and quantity of the earthing conductor stub-ends	NA	W/C	W/R	
<b>C01-C</b>	<b>Tests</b>	<b>EFR 01A</b>	W/C	W/R	
C01-C1	Grounding continuity checked	<b>EFR 01J</b>	W/C	W/R	
C01-C2	Grounding resistance measured (where applicable)	<b>EFR 01I</b>	W/C	W/R	
<b>C01-D</b>	<b>Final inspection</b>	<b>EFR 01A</b>	W/C	W/R	
C01-D1	Identification green or yellow/green tape applied (only where applicable)	NA	W/C	W/R	
C01-D2	As-built marked up copy updated and available	NA	P	R	
<b>C01-E</b>	<b>Final Documentation Review</b>	<b>EFR 01A</b>	P	R	
<b>C02</b>	<b>INSTALLATION &amp; CONNECTION OF ROD WITH INSPECTION PIT</b>				
<b>C02-A</b>	<b>Installation of pit</b>				
C02-A1	Soil access prepared	NA	W/C	W/R	

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		CLIENT	INDIAN OIL CORPORATION LIMITED		
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### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION GROUNDING AND LIGHTNING SYSTEM

#### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C02-A2	Correctness of material and dimensions for inspection pit	NA	W/C	W/R	
C02-A3	Conductive backfill installed (if applicable)	NA	W/C	W/R	
C02-A4	Tag and earth symbol applied (if applicable)	NA	W/C	W/R	
<b>C02-B</b>	<b>Installation of rod</b>				
C02-B1	Location and installation as per layout drawings	NA	W/C	W/R	
C02-B2	Correctness of material and dimensions for rod	NA	W/C	W/R	
C02-B3	Electrodes driven / placed to correct depth	NA	W/C	W/R	
<b>C02-C</b>	<b>Connection execution</b>				
C02-C1	Correctness of material and dimensions for connection fittings	NA	W/C	W/R	
C02-C2	Compression tap fixed or thermoweld connection done properly	NA	W/C	W/R	
C02-C3	Connections protected from corrosion	NA	W/C	W/R	
<b>C02-D</b>	<b>Tests</b>	<b>EFR 01B</b>	<b>W/C</b>	<b>W/R</b>	
C02-D1	Grounding continuity checked	<b>EFR 01J</b>	<b>W/C</b>	<b>W/R</b>	
C02-D2	Grounding resistance measured (where applicable)	<b>EFR 01I</b>	<b>W/C</b>	<b>W/R</b>	
<b>C02-E</b>	<b>Final inspection</b>	<b>EFR 01B</b>	<b>W/C</b>	<b>W/R</b>	
C02-E1	Identification green or yellow/green tape applied (only where applicable)	NA	W/C	W/R	
C02-E2	As-built marked up copy updated and available	NA	P	R	
<b>C02-F</b>	<b>Final Documentation Review</b>	<b>EFR 01B</b>	<b>P</b>	<b>R</b>	
<b>C03</b>	<b>INSTALLATION &amp; CONNECTION OF ROD WITHOUT INSPECTION PIT</b>				
<b>C03-A</b>	<b>Installation of rod</b>				
C03-A1	Location and installation as per layout drawings	NA	W/C	W/R	
C03-A2	Correctness of material and dimensions for rod	NA	W/C	W/R	
C03-A3	Electrodes driven / placed to correct depth	NA	W/C	W/R	
<b>C03-B</b>	<b>Connection execution</b>				
C03-B1	Correctness of material and dimensions for connection fittings	NA	W/C	W/R	
C03-B2	Compression tap fixed or thermoweld connection done properly	NA	W/C	W/R	
C03-B3	Connections protected from corrosion	NA	W/C	W/R	
<b>C03-C</b>	<b>Tests</b>	<b>EFR 01C</b>	<b>W/C</b>	<b>W/R</b>	
C03-C1	Grounding continuity checked	<b>EFR 01J</b>	<b>W/C</b>	<b>W/R</b>	

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### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION GROUNDING AND LIGHTNING SYSTEM

#### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C03-C2	Grounding resistance measured (where applicable)	EFR 01I	W/C	W/R	
<b>C03-D</b>	<b>Final inspection</b>	<b>EFR 01C</b>	<b>W/C</b>	<b>W/R</b>	
C03-D1	Identification green or yellow/green tape applied (only where applicable)	NA	W/C	W/R	
C03-D2	As-built marked up copy updated and available	NA	P	R	
<b>C03-E</b>	<b>Final Documentation Review</b>	<b>EFR 01C</b>	<b>P</b>	<b>R</b>	
<b>C04</b>	<b>INSTALLATION OF GROUNDING BAR</b>				
<b>C04-A</b>	<b>Installation of bar</b>				
C04-A1	Surface prepared and supports prefabricated	NA	W/C	W/R	
C04-A2	Correctness of material and dimensions for grounding bar	NA	W/C	W/R	
C04-A3	Correctness of material and size for fixing bolts and insulators (if any)	NA	W/C	W/R	
C04-A4	Location and installation as per layout drawings	NA	W/C	W/R	
<b>C04-B</b>	<b>Stub-up and concrete base</b>				
C04-B1	Correctness of material and dimensions for conduit stub-up	NA	W/C	W/R	
C04-B2	Location and installation as per layout drawings	NA	W/C	W/R	
<b>C04-C</b>	<b>Connection execution</b>				
C04-C1	Fixing bolts tightened (torque)	NA	W/C	W/R	
C04-C2	Connections to grounding network done and protected from corrosion	NA	W/C	W/R	
C04-C3	Other conductor connections done and protected from corrosion	NA	W/C	W/R	
<b>C04-D</b>	<b>Tests</b>	<b>EFR 01D</b>	<b>W/C</b>	<b>W/R</b>	
C04-D1	Grounding continuity checked (not isolated bus bars)	NA	W/C	W/R	
C04-D2	Isolation checked (isolated bus bars)	NA	W/C	W/R	
<b>C04-E</b>	<b>Final inspection</b>	<b>EFR 01D</b>	<b>W/C</b>	<b>W/R</b>	
C04-E1	Identification green or yellow/green tape applied (only where applicable)	NA	W/C	W/R	
C04-E2	As-built marked up copy updated and available	NA	P	R	
<b>C04-F</b>	<b>Final Documentation Review</b>	<b>EFR 01D</b>	<b>P</b>	<b>R</b>	
<b>C05</b>	<b>INSTALLATION OF OVERHEAD CONDUCTOR</b>				
<b>C05-A</b>	<b>Laying and fixing of aboveground conductor</b>				
C05-A1	Checking of routing and interference with other aboveground systems	NA	W/C	W/R	
C05-A2	Check if the material is damaged and its conformance to specification, drawings	NA	W/C	W/R	

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#### ELECTRICAL INSTALLATION GROUNDING AND LIGHTNING SYSTEM

#### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C05-A3	Grounding conductor type, material, size and insulation verified	NA	W/C	W/R	
C05-A4	Location and installation as per layout drawings and erection details	NA	W/C	W/R	
C05-A5	Correctness of material and dimensions for fittings	NA	W/C	W/R	
C05-A6	Fittings properly installed (correct type, location and inter distance)	NA	W/C	W/R	
C05-A7	Conductor laid properly and protected where required	NA	W/C	W/R	
<b>C05-B</b>	<b>Conductor joints and derivations</b>				
C05-B1	Compressions tap fixed or thermoweld connections done properly	NA	W/C	W/R	
C05-B2	Connections protected from corrosion	NA	W/C	W/R	
C05-B3	Tags installed (only where applicable)	NA	W/C	W/R	
<b>C05-C</b>	<b>Tests</b>	<b>EFR 01E</b>	W/C	W/R	
C05-C1	Grounding continuity checked (where applicable)	<b>EFR 01J</b>	W/C	W/R	
<b>C05-D</b>	<b>Final inspection</b>	<b>EFR 01E</b>	W/C	W/R	
C05-D1	Identification green or yellow/green tape applied (only where applicable)	NA	W/C	W/R	
C05-D2	As-built marked up copy updated and available	NA	P	R	
<b>C05-E</b>	<b>Final Documentation Review</b>	<b>EFR 01E</b>	<b>P</b>	<b>R</b>	
<b>C06</b>	<b>EQUIPMENT GROUNDING CONNECTION</b>				
<b>C06-A</b>	<b>Connection execution</b>				
C06-A1	Check of proper execution and quantity of the earthing conductor stub-ends	NA	W/C	W/R	
C06-A2	Correctness of material and dimensions for protection pipe & connection fittings	NA	W/C	W/R	
C06-A3	Location and installation as per erection details	NA	W/C	W/R	
C06-A4	Bolted or thermoweld connections done properly	NA	W/C	W/R	
C06-A5	Connections protected from corrosion	NA	W/C	W/R	
C06-A6	Tags installed (only where applicable)	NA	W/C	W/R	
<b>C06-B</b>	<b>Tests</b>	<b>EFR 01F</b>	<b>W/C</b>	<b>W/R</b>	
C06-B1	Grounding connection continuity checked	NA EFR	W/C	W/R	
<b>C06-C</b>	<b>Final inspection</b>	<b>01F NA</b>	<b>W/C</b>	<b>W/R</b>	
C06-C1	Identification green or yellow/green tape applied (only where applicable)	NA	W/C	W/R	
C06-C2	As-built marked up copy updated and available	<b>EFR 01F</b>	P	R	
<b>C06-D</b>	<b>Final Documentation Review</b>		<b>P</b>	<b>R</b>	

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### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION GROUNDING AND LIGHTNING SYSTEM

#### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>C07</b>	<b>INSTALLATION OF GROUNDING PLATE</b>				
<b>C07-A</b>	<b>Plate prefabrication</b>				
C07-A1	Correctness of material for plate	NA	W/C	W/R	
C07-A2	Check of dimensions respect to the grounding connection size	NA	W/C	W/R	
C07-A3	Check of dimensions respect to sizing factors (presence of fireproofing, ...)	NA	W/C	W/R	
<b>C07-B</b>	<b>Plate installation</b>				
C07-B1	Check if equipment / structure is released for welding	NA	W/C	W/R	
C07-B2	Correctness of material of welding electrodes	NA	W/C	W/R	
C07-B3	Correctness of plate alignment, height and orientation	NA	W/C	W/R	
C07-B4	Anticorrosion and touch-up paint applied	NA	W/C	W/R	
<b>C07-C</b>	<b>Tests</b>	<b>EFR 01G</b>	<b>W/C</b>	<b>W/R</b>	
C07-C1	Plate stiffness (visual check)	NA	W/C	W/R	
C07-C2	Grounding continuity checked	NA	W/C	W/R	
<b>C07-D</b>	<b>Final inspection</b>	<b>EFR 01G</b>	<b>W/C</b>	<b>W/R</b>	
C07-D1	As-built marked up copy updated and available	NA	P	R	
<b>C07-E</b>	<b>Final Documentation Review</b>	<b>EFR 01G</b>	<b>P</b>	<b>R</b>	
<b>C08</b>	<b>INSTALLATION OF LIGHTNING PROTECTION SYSTEM</b>				
<b>C08-A</b>	<b>Conductor laying and fixing</b>				
C08-A1	Correctness of material, size and insulation for lightning conductors	NA	W/C	W/R	
C08-A2	Tape and other lightning conductors properly installed	NA	W/C	W/R	
C08-A3	Correctness of fixing accessories and of their location and inter distance	NA	W/C	W/R	
<b>C08-B</b>	<b>Connections execution</b>				
C08-B1	Bonding of associated metal structures done	NA	W/C	W/R	
C08-B2	Tightness of cross connections checked	NA	W/C	W/R	
C08-B3	Testing clamps and disconnecting points installed	NA	W/C	W/R	
C08-B4	Surge protections installed (if applicable)	NA	W/C	W/R	
C08-B5	Connection to earthing network	NA	W/C	W/R	
C08-B6	Tags installed (only where applicable)	NA	W/C	W/R	
<b>C08-C</b>	<b>Installation of air terminals</b>				

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#### ELECTRICAL INSTALLATION GROUNDING AND LIGHTNING SYSTEM

#### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C08-C1	Air terminals installed as per drawings	NA EFR	W/C	W/R	
<b>C08-D</b>	<b>Tests</b>	<b>01H EFR</b>	<b>W/C</b>	<b>W/R</b>	
C08-D1	Grounding continuity checked	<b>01J EFR</b>	<b>W/C</b>	<b>W/R</b>	
C08-D2	Ground resistance tests (isolated grounding electrodes only)	<b>01I EFR</b>	<b>W/C</b>	<b>W/R</b>	
<b>C08-E</b>	<b>Final inspection</b>	<b>01H NA</b>	<b>W</b>	<b>S</b>	
C08-E1	Identification green or yellow/green tape applied (only where applicable)	NA	W/C	W/R	
C08-E2	As-built marked up copy updated and available	<b>EFR 01H</b>	<b>P</b>	<b>R</b>	
<b>C08-F</b>	<b>Final Documentation Review</b>		<b>P</b>	<b>R</b>	

#### NOTES:

- (1) A copy of the document will be delivered to Owner for information.

#### GENERAL NOTES

- THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THEJOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY TECHNIP AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN- CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF TECHNIP HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.
- CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT TO TECHNIP/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.



PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 01A

PROJ. No.:

QCF REV.

SH. 1 OF 1

**GROUNDING AND LIGHTNING SYSTEM/ INSTAL. OF UNDERGROUND GROUNDING CONDUCTOR SUMMARY REPORT**

CONTRACTOR:

EFR 01A N° \_\_\_\_\_

**GENERAL DATA**

Tag N°:

Location / area:

System / subsystem:

Date (dd/mm/yy):

Weather :

Last rain (dd/mm/yy):

Soil conditions:  Wet  Damp  
 Dry  Frozen

Soil type:  Gravel  Clay  Sand  Loam  Chemical backfill  Other

Starting time:

Bare wire grid

Insulated wire grid

Earthing rod  Single  Group

Ref. drawing:

Conductor section:

1

3

2

4

Conductor length:

1

3

2

4

No. of connections:

1

3

2

4

**INSTALLATION INSPECTION**

INSPECTIONS		N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
					CONTRACTOR	TECHNIP	OWNER
<b>A - Conductor laying</b>							
A1.	Trench/duct characteristics, location, burial depth and installation check	<input type="checkbox"/>	<input type="checkbox"/>				
A2.	Routing acc. to drawings and check of interference with other buried systems	<input type="checkbox"/>	<input type="checkbox"/>				
A3.	Check if the material is damaged and its conformance to specification, drawings	<input type="checkbox"/>	<input type="checkbox"/>				
A4.	Grounding conductor type, material, size and insulation verified	<input type="checkbox"/>	<input type="checkbox"/>				
A5.	Conductor laid properly and protected where required	<input type="checkbox"/>	<input type="checkbox"/>				
A6.	Conductive backfill installed (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>				
<b>B - Conductor joints and derivations</b>							
B1.	Thermal connections proper execution without cold joints or burnouts	<input type="checkbox"/>	<input type="checkbox"/>				
B2.	Thermal connections protective compound / wrap application	<input type="checkbox"/>	<input type="checkbox"/>				
B3.	Check of proper execution and quantity of the earthing conductor stub-ends	<input type="checkbox"/>	<input type="checkbox"/>				
<b>C - Tests</b>							
C1.	Grounding continuity checked	<input type="checkbox"/>	<input type="checkbox"/>	EFR 01J (*)			
C2.	Grounding resistance measured (where applicable)	<input type="checkbox"/>	<input type="checkbox"/>	EFR 01I (*)			
<b>D - Final inspection</b>							
D1.	Identification green or yellow/green tape applied (only where applicable)	<input type="checkbox"/>	<input type="checkbox"/>				
D2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>				

Notes: A key grounding plan showing the location of the grounding mat portion shall be attached to this form.

(\*) THE QC REPORTS N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES: EFR 01J N° \_\_\_\_\_ EFR 01I N° \_\_\_\_\_

REMARKS:

E-FINAL DOC. REVIEW	INSPECTORS	CONTRACTOR	PMC	OWNER
	NAME			
	SIGNATURE			
	DATE			



PROJECT:

OWNER:

QUALITY CONTROL FORM	<b>EFR 01B</b>	PROJ. No.:	QCF REV.	SH. 1 OF 1
<b>GROUNDING AND LIGHTNING SYSTEM INSTAL. &amp; CONNECT. OF ROD WITH INSPECTION PIT SUMMARY REPORT</b>		CONTRACTOR:		EFR 01B N° _____

**GENERAL DATA**

Tag N° :				
Location / area:		System / subsystem:		Date (dd/mm/yy):
Weather:		Last rain (dd/mm/yy):		Soil conditions: <input type="checkbox"/> Wet <input type="checkbox"/> Damp <input type="checkbox"/> Dry <input type="checkbox"/> Frozen
Soil type: <input type="checkbox"/> Gravel <input type="checkbox"/> Clay <input type="checkbox"/> Sand <input type="checkbox"/> Loam <input type="checkbox"/> Chemical backfill <input type="checkbox"/> Other _____				Starting time:
<input type="checkbox"/> Bare wire grid		<input type="checkbox"/> Insulated wire grid		Earthing rod <input type="checkbox"/> Single <input type="checkbox"/> Group
Rod diameter: 1   2		Rod length: 1   2		No. of rods: 1   2

INSPECTIONS (Ref. to QCP 1610.01)		N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
					CONTRACTOR	TECHNIP	OWNER
<b>A - Installation of pit</b>							
A1.	Soil access prepared	<input type="checkbox"/>	<input type="checkbox"/>				
A2.	Correctness of material and dimensions for inspection pit	<input type="checkbox"/>	<input type="checkbox"/>				
A3.	Conductive backfill installed (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>				
A4.	Tag and earth symbol applied (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>				
<b>B - Installation of rod</b>							
B1.	Location and installation as per layout drawings	<input type="checkbox"/>	<input type="checkbox"/>				
B2.	Correctness of material and dimensions for rod	<input type="checkbox"/>	<input type="checkbox"/>				
B3.	Electrodes driven / placed to correct depth	<input type="checkbox"/>	<input type="checkbox"/>				
<b>C - Connection execution</b>							
C1.	Correctness of material and dimensions for connection fittings	<input type="checkbox"/>	<input type="checkbox"/>				
C2.	Compression tap fixed or thermoweld connection done properly	<input type="checkbox"/>	<input type="checkbox"/>				
C3.	Connections protected from corrosion	<input type="checkbox"/>	<input type="checkbox"/>				
<b>D - Tests</b>							
D1.	Grounding continuity checked	<input type="checkbox"/>	<input type="checkbox"/>	EFR 01J (*)			
D2.	Grounding resistance measured (where applicable)	<input type="checkbox"/>	<input type="checkbox"/>	EFR 01I (*)			
<b>E - Final inspection</b>							
E1.	Identification green or yellow/green tape applied (only where applicable)	<input type="checkbox"/>	<input type="checkbox"/>				
E2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>				

Notes: A key grounding plan showing the location of the grounding rod(s) shall be attached to this form.  
 (\*) THE QC REPORTS N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES:  
 EFR 01J N° \_\_\_\_\_ EFR 01I N° \_\_\_\_\_

REMARKS:

<b>F- FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>PMC</b>	<b>OWNER</b>
	NAME			
	SIGNATURE			
	DATE			



PROJECT:

OWNER:

QUALITY CONTROL FORM	<b>EFR 01C</b>	PROJ. No.:	QCF REV.	SH. 1 OF 1
<b>GROUNDING AND LIGHTNING SYSTEM INSTAL. &amp; CONNECT. OF ROD WITHOUT INSPECTION PIT SUMMARY REPORT</b>		CONTRACTOR:		<b>EFR 01C N° ____</b>

**GENERAL DATA**

Tag N° :				
Location / area:		System / subsystem:		Date (dd/mm/yy):
Weather:		Last rain (dd/mm/yy):		Soil conditions: <input type="checkbox"/> Wet <input type="checkbox"/> Damp <input type="checkbox"/> Dry <input type="checkbox"/> Frozen
Soil type: <input type="checkbox"/> Gravel <input type="checkbox"/> Clay <input type="checkbox"/> Sand <input type="checkbox"/> Loam <input type="checkbox"/> Chemical backfill <input type="checkbox"/> Other _____ Starting time:				
<input type="checkbox"/> Bare wire grid <input type="checkbox"/> Insulated wire grid Earthing rod <input type="checkbox"/> Single <input type="checkbox"/> Group Ref. drawing:				
Rod diameter:	1	2	Rod length:	1 2 No. of rods: 1 2

INSPECTIONS (Ref. to QCP 1610.01)		N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
					CONTRACTOR.	TECHNIP	OWNER
<b>A - Installation of rod</b>							
A1.	Location and installation as per layout drawings	<input type="checkbox"/>	<input type="checkbox"/>				
A2.	Correctness of material and dimensions for rod	<input type="checkbox"/>	<input type="checkbox"/>				
A3.	Electrodes driven / placed to correct depth	<input type="checkbox"/>	<input type="checkbox"/>				
<b>B - Connection execution</b>							
B1.	Correctness of material and dimensions for connection fittings	<input type="checkbox"/>	<input type="checkbox"/>				
B2.	Compression tap fixed or thermoweld connection done properly	<input type="checkbox"/>	<input type="checkbox"/>				
B3.	Connections protected from corrosion	<input type="checkbox"/>	<input type="checkbox"/>				
<b>C - Tests</b>							
C1.	Grounding continuity checked	<input type="checkbox"/>	<input type="checkbox"/>	EFR 01J (*)			
C2.	Grounding resistance measured (where applicable)	<input type="checkbox"/>	<input type="checkbox"/>	EFR 01I (*)			
<b>D - Final inspection</b>							
D1.	Identification green or yellow/green tape applied (only where applicable)	<input type="checkbox"/>	<input type="checkbox"/>				
D2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>				

Notes: A key grounding plan showing the location of the grounding rod(s) shall be attached to this form.  
 (\*) THE QC REPORTS N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES :  
 EFR 01J N° \_\_\_\_ EFR 01I N° \_\_\_\_

REMARKS :

E- FINAL DOC. REVIEW	INSPECTORS	CONTRACTOR	PMC	OWNER
	NAME			
	SIGNATURE			
	DATE			

 		PROJECT:					
		OWNER:					
QUALITY CONTROL FORM <b>EFR 01D</b>		PROJ. No.:	QCF REV.	SH. 1 OF 1			
<b>GROUNDING AND LIGHTNING SYSTEM INSTALLATION OF GROUNDING BAR SUMMARY REPORT</b>		CONTRACTOR:		EFR 01D N° ____			
<b>GENERAL DATA</b>							
Tag N° :							
Location / area:		System / subsystem:		Date (dd/mm/yy):			
Weather:		Bar <input type="checkbox"/> Bare <input type="checkbox"/> Insulated		Ref. drawing:			
Bar dimensions (length x height x width):		1	2	No. of bars: 1 2			
INSPECTIONS (Ref. to QCP 1610.01)		N.A.	ACC.	REPORT / REFERENC E	INSPECTOR SIGNATURE & DATE		
					CONTRACTOR	TECHNIP	OWNER
<b>A - Installation of bar</b>							
A1.	Surface prepared and supports prefabricated	<input type="checkbox"/>	<input type="checkbox"/>				
A2.	Correctness of material and dimensions for grounding bar	<input type="checkbox"/>	<input type="checkbox"/>				
A3.	Correctness of material and size for fixing bolts and insulators (if any)	<input type="checkbox"/>	<input type="checkbox"/>				
A4.	Location and installation as per layout drawings	<input type="checkbox"/>	<input type="checkbox"/>				
<b>B - Stub-up and concrete base</b>							
B1.	Correctness of material and dimensions for conduit stub-up	<input type="checkbox"/>	<input type="checkbox"/>				
B2.	Location and installation as per layout drawings	<input type="checkbox"/>	<input type="checkbox"/>				
<b>C - Connection execution</b>							
C1.	Fixing bolts tightened	<input type="checkbox"/>	<input type="checkbox"/>				
C2.	Connections to grounding network done and protected from corrosion	<input type="checkbox"/>	<input type="checkbox"/>				
C3.	Other conductor connections done and protected from corrosion	<input type="checkbox"/>	<input type="checkbox"/>				
<b>D - Tests</b>							
D1.	Grounding continuity checked (not isolated bus bars)	<input type="checkbox"/>	<input type="checkbox"/>				
D2.	Isolation checked (isolated bus bars)	<input type="checkbox"/>	<input type="checkbox"/>				
<b>E - Final inspection</b>							
E1.	Identification green or yellow/green tape applied (only where applicable)	<input type="checkbox"/>	<input type="checkbox"/>				
E2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>				
Note: A key grounding plan showing the location of the grounding bar(s) shall be attached to this form.							
REMARKS :							
F- FINAL DOC. REVIEW	<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>PMC</b>	<b>OWNER</b>			
	NAME						
	SIGNATURE						
	DATE						



PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 01E

PROJ. No.:

QCF REV.

SH. 1 OF 1

**GROUNDING AND LIGHTNING SYSTEM  
INSTALLATION OF OVERHEAD CONDUCTOR  
SUMMARY REPORT**

SUBCONTRACTOR:

EFR 01E N° \_\_\_\_\_

**GENERAL DATA**

Tag N° :

Location / area: System / subsystem: Date (dd/mm/yy):

Weather: Conductor  Bare  Insulated Ref. drawing:

Conductor section:	1	2	Conductor length:	1	2	No. of connections:	1	2
	3	4		3	4		3	4

INSPECTIONS (Ref. to QCP 1610.01)	N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
				CONTRACTOR	TECHNIP	OWNER

**A - Laying and fixing of aboveground conductor**

A1.	Checking of routing and interference with other aboveground systems	<input type="checkbox"/>	<input type="checkbox"/>
A2.	Check if the material is damaged and its conformance to specification, drawings	<input type="checkbox"/>	<input type="checkbox"/>
A3.	Grounding conductor type, material, size and insulation verified	<input type="checkbox"/>	<input type="checkbox"/>
A4.	Location and installation as per layout drawings and erection details	<input type="checkbox"/>	<input type="checkbox"/>
A5.	Correctness of material and dimensions for fittings	<input type="checkbox"/>	<input type="checkbox"/>
A6.	Fittings properly installed (correct type, location and inter distance)	<input type="checkbox"/>	<input type="checkbox"/>
A7.	Conductor laid properly and protected where required	<input type="checkbox"/>	<input type="checkbox"/>

**B - Conductor joints and derivations**

B1.	Compressions tap fixed or thermoweld connections done properly	<input type="checkbox"/>	<input type="checkbox"/>
B2.	Connections protected from corrosion	<input type="checkbox"/>	<input type="checkbox"/>
B3.	Tags installed (only where applicable)	<input type="checkbox"/>	<input type="checkbox"/>

**C - Tests**

C1.	Grounding continuity checked (where applicable)	<input type="checkbox"/>	<input type="checkbox"/>
-----	---	--------------------------	--------------------------

EFR 01J (\*)

**D - Final inspection**

D1.	Identification green or yellow/green tape applied (only where applicable)	<input type="checkbox"/>	<input type="checkbox"/>
D2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>

Notes: A key grounding plan showing the location of the grounding conductor shall be attached to this form.

(\*) THE QC REPORT N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES : EFR 01I N° \_\_\_\_\_

REMARKS :

E- FINAL DOC. REVIEW	INSPECTORS	CONTRACTOR	PMC	OWNER
	NAME			
	SIGNATURE			
	DATE			

 		PROJECT:							
		OWNER:							
QUALITY CONTROL FORM		<b>EFR 01F</b>	PROJ. No.:	QCF REV.	SH. 1 OF 1				
<b>GROUNDING AND LIGHTNING SYSTEM EQUIPMENT GROUNDING CONNECTION SUMMARY REPORT</b>			CONTRACTOR:	EFR 01F N° ____					
<b>GENERAL DATA</b>									
Location / area:		System / subsystem:		Date (dd/mm/yy):					
Weather:		Conductor <input type="checkbox"/> Bare <input type="checkbox"/> Insulated		Ref. drawing:					
<b>EQUIPMENT TYPE</b>									
#	Type	Tag	Connections		#	Type	Tag	Connections	
			No.	Size				No.	Size
1					8				
2					9				
3					10				
4					11				
5					12				
6					13				
7					14				
INSPECTIONS (Ref. to QCP 1610.01)			N.A.	ACC	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE			
						CONTRACTOR	TECHNIP	OWNER	
<b>A - Connection execution</b>									
A1.	Check of proper execution and quantity of the earthing conductor stub-ends		<input type="checkbox"/>	<input type="checkbox"/>					
A2.	Correctness of material and dimensions for protection pipe & connection fittings		<input type="checkbox"/>	<input type="checkbox"/>					
A3.	Location and installation as per erection details		<input type="checkbox"/>	<input type="checkbox"/>					
A4.	Bolted or thermoweld connections done properly		<input type="checkbox"/>	<input type="checkbox"/>					
A5.	Connections protected from corrosion		<input type="checkbox"/>	<input type="checkbox"/>					
A6.	Tags installed (only where applicable)		<input type="checkbox"/>	<input type="checkbox"/>					
<b>B - Tests</b>									
B1.	Grounding connection continuity checked		<input type="checkbox"/>	<input type="checkbox"/>					
<b>C - Final inspection</b>									
C1.	Identification green or yellow/green tape applied (only where applicable)		<input type="checkbox"/>	<input type="checkbox"/>					
C2.	As-built marked up copy updated and available		<input type="checkbox"/>	<input type="checkbox"/>					
REMARKS :									
D- FINAL DOC. REVIEW	<b>INSPECTORS</b>		<b>CONTRACTOR</b>		<b>PMC</b>		<b>OWNER</b>		
	NAME								
	SIGNATURE								
	DATE								



PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 01G

PROJ. No.:

QCF REV.

SH. 1 OF 1

**GROUNDING AND LIGHTNING SYSTEM  
INSTALLATION OF GROUNDING PLATE  
SUMMARY REPORT**

CONTRACTOR:

EFR 01G N° \_\_\_\_

**GENERAL DATA**

Location / area:	System / subsystem:	Date (dd/mm/yy):
Weather:	Conductor <input type="checkbox"/> Bare <input type="checkbox"/> Insulated	Ref. drawing:

**EQUIPMENT TYPE**

#	Type	Tag	Plates		#	Type	Tag	Plates	
			No.	Size				No.	Size
1					8				
2					9				
3					10				
4					11				
5					12				
6					13				
7					14				

INSPECTIONS (Ref. to QCP 1610.01)				N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
							CONTRACTOR	TECHNIP	OWNER
<b>A - Plate prefabrication</b>									
A1.	Correctness of material for plate			<input type="checkbox"/>	<input type="checkbox"/>				
A2.	Check of dimensions respect to the grounding connection size			<input type="checkbox"/>	<input type="checkbox"/>				
A3.	Check of dimensions respect to sizing factors (presence of fireproofing, ...)			<input type="checkbox"/>	<input type="checkbox"/>				
<b>B - Plate installation</b>									
B1.	Check if equipment / structure is released for welding			<input type="checkbox"/>	<input type="checkbox"/>				
B2.	Correctness of material for welding electrodes			<input type="checkbox"/>	<input type="checkbox"/>				
B3.	Correctness of plate alignment, height and orientation			<input type="checkbox"/>	<input type="checkbox"/>				
B4.	Anticorrosion and touch-up paint applied			<input type="checkbox"/>	<input type="checkbox"/>				
<b>C - Tests</b>									
C1.	Plate stiffness (visual check)			<input type="checkbox"/>	<input type="checkbox"/>				
C2.	Grounding continuity checked			<input type="checkbox"/>	<input type="checkbox"/>				
<b>D - Final inspection</b>									
D1.	As-built marked up copy updated and available			<input type="checkbox"/>	<input type="checkbox"/>				

REMARKS:

E- FINAL DOC. REVIEW	INSPECTORS	CONTRACTOR	PMC	OWNER
	NAME			
	SIGNATURE			
	DATE			



PROJECT:

OWNER:

QUALITY CONTROL FORM	<b>EFR 01H</b>	PROJ. No.:	QCF REV.	SH. 1 OF 1
<b>GROUNDING AND LIGHTNING SYSTEM INSTALLATION OF LIGHTNING PROTECTION SYSTEM SUMMARY REPORT</b>		CONTRACTOR:		EFR 01H N° ____

**GENERAL DATA**

Tag N° :											
Location / area:				System / subsystem:				Date (dd/mm/yy):			
Weather:				Conductor <input type="checkbox"/> Bare <input type="checkbox"/> Insulated				Ref. drawing:			
Conductor section:	1		2	Conductor length:	1		2	No. of connections:	1		2
Air terminal type:	a		b	Air terminal size:	a		b	No. of air terminals:	a		b

INSPECTIONS (Ref. to QCP 1610.01)				N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
							CONTRACTOR	TECHNIP	OWNER
<b>A - Conductor laying and fixing</b>									
A1.	Correctness of material, size and insulation for lightning conductors			<input type="checkbox"/>	<input type="checkbox"/>				
A2.	Tape and other lightning conductors properly installed			<input type="checkbox"/>	<input type="checkbox"/>				
A3.	Correctness of fixing accessories and of their location and interdistance			<input type="checkbox"/>	<input type="checkbox"/>				
<b>B - Connections execution</b>									
B1.	Bonding of associated metal structures done			<input type="checkbox"/>	<input type="checkbox"/>				
B2.	Tightness of cross connections checked			<input type="checkbox"/>	<input type="checkbox"/>				
B3.	Testing clamps and disconnecting points installed			<input type="checkbox"/>	<input type="checkbox"/>				
B4.	Surge protections installed (if applicable)			<input type="checkbox"/>	<input type="checkbox"/>				
B5.	Connection to earthing network			<input type="checkbox"/>	<input type="checkbox"/>				
B6.	Tags installed (only where applicable)			<input type="checkbox"/>	<input type="checkbox"/>				
<b>C - Installation of air terminals</b>									
C1.	Air terminals installed as per drawings			<input type="checkbox"/>	<input type="checkbox"/>				
<b>D - Tests</b>									
D1.	Grounding continuity checked			<input type="checkbox"/>	<input type="checkbox"/>	EFR 01J (*)			
D2.	Ground resistance tests (isolated grounding electrodes only)			<input type="checkbox"/>	<input type="checkbox"/>	EFR 01I (*)			
<b>E - Final inspection</b>									
E1.	Identification green or yellow/green tape applied (only where applicable)			<input type="checkbox"/>	<input type="checkbox"/>				
E2.	As-built marked up copy updated and available			<input type="checkbox"/>	<input type="checkbox"/>				

Notes: A key grounding plan showing the location of the lightning protection system shall be attached to this form.  
 (\*) THE QC REPORTS N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES : EFR 01J N° \_\_\_\_ EFR 01I N° \_\_\_\_

REMARKS :

F- FINAL DOC. REVIEW	INSPECTORS	CONTRACTOR	PMC	OWNER
	NAME			
	SIGNATURE			
	DATE			



PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 011

PROJ. No.:

QCF REV.

SH. 1 OF 1

**GROUNDING AND LIGHTNING SYSTEM  
GROUNDING RESISTANCE MEASUREMENT**

CONTRACTOR:

EFR 011 N° \_\_\_\_

**GENERAL DATA**

Tag N° :

Location / area:

System / subsystem:

Date (dd/mm/yy):

Weather:

Last rain (dd/mm/yy):

Soil conditions:  Wet  Damp  Dry  FrozenSoil type:  Gravel  Clay  Sand  Loam  Chemical backfill  Other \_\_\_\_\_

Starting time:

 Bare wire grid Insulated wire gridEarthing rod  Single  Group

Ref. drawing:

**RESISTANCE MEASUREMENT**

Earth resist. tester manuf.:

Type:

Calibration date:

Recalibration date:

Overall distance "D" between (1) and (3) \_\_\_\_

 m ft

Direction of (3) and (2) from (1)

 N E W S

(1)	(2)	(3)	Distance (1) to (2)	% of D	Resistance $\Omega$	Distance (1) to (2)	% of D	Resistance $\Omega$	Distance (1) to (2)	% of D	Resistance $\Omega$
C1	P1	P2	C2								
Earth resistance tester											
(1) Mat / rod under test											
(2) Potential probe											
(3) Remote current probe											

Average resistance value:

 $\Omega$  Acceptable Not acceptable

Grounding resistance plot



Distance (C1P1) to P2

 Meters  Feet

REMARKS :

**INSPECTORS****CONTRACTOR****PMC****OWNER**

NAME

SIGNATURE

DATE



PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 01J

PROJ. No.:

QCF REV.

SH. 1 OF 1

**GROUNDING AND LIGHTNING SYSTEM  
GROUNDING CONDUCTOR CONTINUITY TEST**

CONTRACTOR:

EFR 01J N° \_\_\_\_

**GENERAL DATA**

Location / area:	System / subsystem:	Date (dd/mm/yy):
Weather:	Last rain (dd/mm/yy):	Soil conditions: <input type="checkbox"/> Wet <input type="checkbox"/> Damp <input type="checkbox"/> Dry <input type="checkbox"/> Frozen
Soil type: <input type="checkbox"/> Gravel <input type="checkbox"/> Clay <input type="checkbox"/> Sand <input type="checkbox"/> Loam <input type="checkbox"/> Chemical backfill <input type="checkbox"/> Other _____	Starting time:	
<input type="checkbox"/> Bare wire	<input type="checkbox"/> Insulated wire	Ref. drawing:

**GROUNDING CONDUCTOR CONTINUITY TEST POINT-TO-POINT LOCATION**

Tester manufacturer:	Type:	Calibration date:	Recalibration date:
----------------------	-------	-------------------	---------------------

Wire n.	From point	To point	Acceptable	Wire n.	From point	To point	Acceptable
W 1			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 29			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 2			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 30			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 3			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 31			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 4			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 32			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 5			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 33			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 6			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 34			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 7			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 35			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 8			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 36			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 9			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 37			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 10			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 38			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 11			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 39			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 12			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 40			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 13			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 41			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 14			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 42			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 15			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 43			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 16			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 44			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 17			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 45			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 18			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 46			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 19			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 47			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 20			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 48			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 21			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 49			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 22			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 50			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 23			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 51			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 24			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 52			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 25			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 53			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 26			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 54			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 27			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 55			<input type="checkbox"/> Yes <input type="checkbox"/> No
W 28			<input type="checkbox"/> Yes <input type="checkbox"/> No	W 56			<input type="checkbox"/> Yes <input type="checkbox"/> No

Note: A key grounding plan showing the location of the numbered wires and points shall be attached to this form.

REMARKS:

INSPECTORS	CONTRACTOR	PMC	OWNER
NAME			
SIGNATURE			
DATE			

		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION SUBSTATION EQUIPMENT</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1620-001		<b>Rev. No.</b> 0	Page 1 of 22

**QUALITY CONTROL PLAN**  
**ELECTRICAL INSTALLATION**  
**SUBSTATION EQUIPMENT**

<b>TYPE OF QUALITY CONTROL REPORT</b>	<b>CERTIFICATION EXTENT</b>
EFR 02A	Transformers and Reactors - Mechanical Install./Electrical Install./Summary Report
EFR 02C	Transformers and Reactors - Winding Resistance and Insulation Test
EFR 02D	Transformers and Reactors - Transformer Vector Group Test
EFR 02E	Transformers and Reactors - Dielectric Tests
EFR 02F	Transformers and Reactors - Transformers Turns Ratio Test
EFR 02G	Transformers and Reactors - Transformer on Load Tap Changer Tests
EFR 02H	Transformers and Reactors - Oil Analysis
EFR 03A	Switchgear and Controlgear - Mechanical Install. / Electrical Install. Summary Report
EFR 03C	Switchgear and Controlgear - Busbar Resistance, Insulation Resistance, HI-Pot Test
EFR 03D	Switchgear and Controlgear - Auxiliary Panel Installation Summary Report
EFR 03E	Switchgear and Controlgear - Power/Lighting Distribution Panel Functional Test
EFR 03F	Switchgear and Controlgear – Auto-change over scheme
EFR 03G	Switchgear and Controlgear - Circuit Breakers – Electrical Tests
EFR 03H	Switchgear and Controlgear - Disconnect Switches – Electrical Tests
EFR 03I	Switchgear and Controlgear - Bus Duct - Summary Report
EFR 03J	Switchgear and Controlgear - Bus Duct – Electrical Installation and Test
EFR 03K	Switchgear and Controlgear - Current Transformers
EFR 03L	Switchgear and Controlgear - Voltage Transformers
EFR 03M	Switchgear and Controlgear - Protective Relay / PLC I/O Assignment Report
EFR 03N	Switchgear and Controlgear - Protective Relay Testing Report
EFR 03O	Switchgear and Controlgear - Meters and Transducers Testing Report
EFR 03P	Switchgear and Controlgear - Capacitors and Power Factor Controllers Test

			 Written By <small>balaramangan@technipfmc.com 2019.11.20 16:23:37 +05'30'</small>	 Checked By <small>Abalappan L. 2019.11.21 10:29:14 +05'30'</small>	 Approved By <small>Abalappan L. 2019.11.21 10:59:41 +05'30'</small>	 Authorized By <small>Motichrisphee Jearamelan 2019.11.29 14:26:53 +05'30'</small>
0	20.11.2019	ISSUED FOR IMPLEMENTATION	TB	PKP / LA	LA	JMC
<b>REV.</b>	<b>DATE</b>	<b>STATUS</b>	<b>WRITTEN BY</b>	<b>CHECKED BY</b>	<b>APPROVED BY</b>	<b>AUTHOR. BY</b>
<b>DOCUMENT REVISIONS</b>						

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### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION SUBSTATION EQUIPMENT

#### QUALITY CONTROL ACTIVITIES

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>A</b>	<b>PRELIMINARY ACTIVITIES</b>				
A1	Check of contractor drawings revision status	By Contractor	!	!	
A2	Contractor technical specification and procedure	By Contractor	INFO	R/A	
A3	Contractor's method of statement (if required)	By Contractor	P	R	(1)
<b>B</b>	<b>MATERIALS - BEFORE AND AFTER INSTALLATION</b>				
<b>B1</b>	<b>IDENTIFICATION AND PRESERVATION STATUS</b>	By Contractor	WC	W/R	
<b>C01</b>	<b>INSTALLATION OF MAIN TRANSFORMERS, LIQUID IMMERSED</b>				
<b>C01-A</b>	<b>Transportation and alignment</b>				
C01-A1	Compliance of equipment rating and nameplate with documentation	By Contractor	WC	R	
C01-A2	Impact recorder inspection before unloading (if present)	By Contractor	WC	R	
C01-A3	No indication of rough handling	By Contractor	WC	R	
C01-A4	All shipping bracings removed	By Contractor	WC	S	
C01-A5	Required area and equipment clearances	By Contractor	WC	S	
C01-A6	Equipment correctly aligned and levelled	By Contractor	WC	W/R	
<b>C01-B</b>	<b>Mechanical installation</b>				
C01-B1	Equipment correctly anchored on its foundation	By Contractor	WC	W/R	
C01-B2	Equipment components (radiators, bushings, etc.) assembled correctly	By Contractor	WC	W/R	
C01-B3	No missing hardware and accessory components not damaged	By Contractor	WC	S	
C01-B4	Nameplates	By Contractor	WC	R	
C01-B5	Insulating liquid filling and level check	By Contractor	WC	S	
C01-B6	Absence of insulating liquid leakages	By Contractor	WC	S	
C01-B7	Oil treatment (only where applicable)	By Contractor	WC	S	
C01-B8	Operability of all valves (drain, sample, etc.) and flange gaskets conditions	By Contractor	WC	W/R	
<b>C01-C</b>	<b>Electrical installation</b>				
C01-C1	Bushings cleaned and ready for cable / bus duct connection	By Contractor	WC	S	
C01-C2	Earthing connections done	By Contractor	WC	W/R	
C01-C3	Surge arresters installed (if applicable)	By Contractor	WC	W/R	

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### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION SUBSTATION EQUIPMENT

#### QUALITY CONTROL ACTIVITIES

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C01-C4	Correct operation of fans and oil pumps	By Contractor	WC	W/R	
C01-C5	Correct Installation of Silica Gel Breather	By Contractor	WC	W/R	
C01-C6	Correct operation of star point earthing switch (if applicable)	By Contractor	WC	W/R	
C01-C7	Correct operation of Buchholz relay alarm and trip circuits	By Contractor	WC	W/R	
C01-C8	Correct operation of oil level gauge alarm circuits	By Contractor	WC	W/R	
C01-C9	Correct operation of winding and oil temp. detector alarm and trip circuits	By Contractor	WC	W/R	
C01-C10	Correct operation of pressure devices trip circuits	By Contractor	WC	W/R	
C01-C11	Insulation test for low voltage auxiliary circuits	By Contractor	WC	W/R	
C01-C12	Protective devices settings	By Contractor	WC	W/R	
<b>C01-D</b>	<b>Testing</b>	<b>EFR 02A</b>	WC	W/R	
<b>C01-D1</b>	<b>Winding resistance measurement</b>	<b>EFR 02C</b>	WC	W/R	
<b>C01-D2</b>	<b>Insulation test (megger)</b>	<b>EFR 02C</b>	WC	W/R	
<b>C01-D3</b>	<b>Overvoltage test</b>	<b>EFR 02C</b>	WC	W/R	
<b>C01-D4</b>	<b>Vector group test</b>	<b>EFR 02D</b>	WC	W/R	
<b>C01-D5</b>	<b>Dielectric absorption and polarization index test</b>	<b>EFR 02E</b>	WC	W/R	
<b>C01-D6</b>	<b>Power factor test</b>	<b>EFR 02E</b>	WC	W/R	
<b>C01-D7</b>	<b>Turns ratio test</b>	<b>EFR 02F</b>	WC	W/R	
<b>C01-D8</b>	<b>On load / Off load tap changer tests</b>	<b>EFR 02G</b>	WC	W/R	
<b>C01-D9</b>	<b>Oil analysis</b>	<b>EFR 02H</b>	WC	W/R	
<b>C01-E</b>	<b>Final inspection</b>	<b>EFR 02A</b>	WC	R	
<b>C01-E1</b>	<b>Connection of primary and secondary cables</b>	<b>EFR 02A</b>	WC	W/R	
<b>C01-E2</b>	<b>Connection of auxiliary cables</b>	<b>EFR 02A</b>	WC	W/R	
<b>C01-E3</b>	<b>Bolted connections resistance measurement</b>	<b>EFR 02A</b>	WC	W/R	
<b>C01-E4</b>	<b>Surrounding area cleared</b>	<b>EFR 02A</b>	WC	S	
<b>C01-E5</b>	<b>Warning signs and posts installed</b>	<b>EFR 02A</b>	WC	R	
<b>C01-E6</b>	<b>As-built marked up copy updated and available</b>	<b>EFR 02A</b>	P	R	
<b>C01-E7</b>	<b>Equipment ready for energization</b>	<b>EFR 02A</b>	WC	W/R	
<b>C01-F</b>	<b>Final Documentation Review</b>	<b>EFR 02A</b>	<b>P</b>	<b>R</b>	

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<b>QCP- ELECTRICAL INSTALLATION SUBSTATION EQUIPMENT</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1620-001		<b>Rev. No.</b> 0	Page 5 of 22

### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION SUBSTATION EQUIPMENT

#### QUALITY CONTROL ACTIVITIES

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>C03</b>	<b>INSTALLATION OF DISTRIBUTION TRANSFORMERS, LIQUID IMMERSSED</b>				
<b>C03-A</b>	<b>Transportation and alignment</b>				
C03-A1	Compliance of equipment rating and nameplate with documentation	By Contractor	WC	R	
C03-A2	Impact recorder inspection before unloading (if present)	By Contractor.	WC	S	
C03-A3	No indication of rough handling	By Contractor.	WC	S	
C03-A4	All shipping bracings removed	By Contractor.	WC	S	
C03-A5	Required area and equipment clearances	By Contractor.	WC	W/R	
C03-A6	Equipment correctly aligned and levelled	By Contractor.	WC	W/R	
<b>C03-B</b>	<b>Mechanical installation</b>				
C03-B1	Equipment correctly anchored on its foundation	By Contractor.	WC	W/R	
C03-B2	Equipment components (radiators, bushings, etc.) assembled correctly	By Contractor.	WC	W/R	
C03-B3	No missing hardware and accessory components not damaged	By Contractor.	WC	W/R	
C03-B4	Nameplates	By Contractor.	WC	R	
C03-B5	Insulating liquid filling and level check	By Contractor.	WC	R	
C03-B6	Absence of insulating liquid leakages	By Contractor.	WC	R	
C03-B7	Oil treatment (only where applicable)	By Contractor.	WC	R	
C03-B8	Operability of all valves (drain, sample, etc) and flange gaskets conditions	By Contractor.	WC	W/R	
<b>C03-C</b>	<b>Electrical installation</b>				
C03-C1	Bushings cleaned and ready for cable / bus duct connection	By Contractor.	WC	W/R	
C03-C2	Earthing connections done	By Contractor.	WC	W/R	
C03-C3	Surge arresters installed (if applicable)	By Contractor.	WC	W/R	
C03-C4	Correct operation of fans and oil pumps	By Contractor.	WC	W/R	
C03-C5	Correct operation of star point earthing switch (if applicable)	By Contractor.	WC	W/R	
C03-C6	Correct operation of Buchholz relay alarm and trip circuits	By Contractor.	WC	W/R	
C03-C7	Correct operation of oil level gauge alarm circuits	By Contractor.	WC	W/R	
C03-C8	Correct operation of winding and oil temp. detector alarm and trip circuits	By Contractor.	WC	W/R	

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### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION SUBSTATION EQUIPMENT

#### QUALITY CONTROL ACTIVITIES

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C03-C9	Correct operation of pressure devices trip circuits	By Contractor.	WC	W/R	
C03-C10	Insulation test for low voltage auxiliary circuits	By Contractor.	WC	W/R	
C03-C11	Protective devices settings	By Contractor.	WC	W/R	
<b>C03-D</b>	<b>Testing</b>	<b>EFR 02A</b>	WC	W/R	
<b>C03-D1</b>	<b>Winding resistance measurement</b>	<b>EFR 02C</b>	WC	W/R	
<b>C03-D2</b>	<b>Insulation test (megger)</b>	<b>EFR 02C</b>	WC	W/R	
<b>C03-D3</b>	<b>Overvoltage test</b>	<b>EFR 02C</b>	WC	W/R	
<b>C03-D4</b>	<b>Vector group test</b>	<b>EFR 02D</b>	WC	W/R	
<b>C03-D5</b>	<b>Dielectric absorption and polarization index test</b>	<b>EFR 02E</b>	WC	W/R	
<b>C03-D6</b>	<b>Power factor test</b>	<b>EFR 02E</b>	WC	W/R	
<b>C03-D7</b>	<b>Turns ratio test</b>	<b>EFR 02F</b>	WC	W/R	
<b>C03-D8</b>	<b>On load tap changer tests</b>	<b>EFR 02G</b>	WC	W/R	
<b>C03-D9</b>	<b>Oil analysis</b>	<b>EFR 02H</b>	WC	W/R	
<b>C03-E</b>	<b>Final inspection</b>	<b>EFR 02A</b>	WC	W/R	
<b>C03-E1</b>	<b>Connection of primary and secondary cables</b>	By Contractor.	WC	W/R	
<b>C03-E2</b>	<b>Connection of auxiliary cables</b>	By Contractor.	WC	W/R	
<b>C03-E3</b>	<b>Bolted connections resistance measurement</b>	By Contractor.	WC	W/R	
<b>C03-E4</b>	<b>Surrounding area cleared</b>	By Contractor.	WC	W/R	
<b>C03-E5</b>	<b>Warning signs and posts installed</b>	By Contractor.	WC	W/R	
<b>C03-E6</b>	<b>As-built marked up copy updated and available</b>	By Contractor.	WC	W/R	
<b>C03-E7</b>	<b>Equipment ready for energization</b>	By Contractor.	WC	W/R	
<b>C03-F</b>	<b>Final Documentation Review</b>	<b>EFR 02A</b>	<b>P</b>	<b>R</b>	
<b>C04</b>	<b>INSTALLATION OF DISTRIBUTION TRANSFORMERS, CAST RESIN / DRY</b>				
<b>C04-A</b>	<b>Transportation and alignment</b>				
C04-A1	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	R	
C04-A2	Impact recorder inspection before unloading (if present)	By Contractor.	WC	S	
C04-A3	No indication of rough handling	By Contractor.	WC	S	

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### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION SUBSTATION EQUIPMENT

#### QUALITY CONTROL ACTIVITIES

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C04-A4	All shipping bracings removed	By Contractor.	WC	S	
C04-A5	Required area and equipment clearances	By Contractor.	WC	W/R	
C04-A6	Equipment correctly aligned and levelled	By Contractor.	WC	W/R	
<b>C04-B</b>	<b>Mechanical installation</b>				
C04-B1	Equipment correctly anchored on its foundation	By Contractor.	WC	W/R	
C04-B2	Equipment components (radiators, bushings, etc.) assembled correctly	By Contractor.	WC	W/R	
C04-B3	No missing hardware and accessory components not damaged	By Contractor.	WC	S	
C04-B4	Nameplates	By Contractor.	WC	R	
C04-B5	Insulating liquid filling and level check	By Contractor.	WC	W/R	
C04-B6	Absence of insulating liquid leakages	By Contractor.	WC	W/R	
C04-B7	Oil treatment (only where applicable)	By Contractor.	WC	W/R	
C04-B8	Operability of all valves (drain, sample, etc) and flange gaskets conditions	By Contractor.	WC	W/R	
<b>C04-C</b>	<b>Electrical installation</b>				
C04-C1	Bushings cleaned and ready for cable / bus duct connection	By Contractor.	WC	W/R	
C04-C2	Earthing connections done	By Contractor.	WC	W/R	
C04-C3	Surge arresters installed (if applicable)	By Contractor.	WC	W/R	
C04-C4	Correct operation of fans and oil pumps	By Contractor.	WC	W/R	
C04-C5	Correct operation of star point earthing switch (if applicable)	By Contractor.	WC	W/R	
C04-C6	Correct operation of Buchholz relay alarm and trip circuits	By Contractor.	WC	W/R	
C04-C7	Correct operation of oil level gauge alarm circuits	By Contractor.	WC	W/R	
C04-C8	Correct operation of winding and oil temp. detector alarm and trip circuits	By Contractor.	WC	W/R	
C04-C9	Correct operation of pressure devices trip circuits	By Contractor.	WC	W/R	
C04-C10	Insulation test for low voltage auxiliary circuits	By Contractor.	WC	W/R	
C04-C11	Protective devices settings	By Contractor.	WC	W/R	
<b>C04-D</b>	<b>Testing</b>	<b>EFR 02A</b>	WC	W/R	
<b>C04-D1</b>	<b>Winding resistance measurement</b>	<b>EFR 02C</b>	WC	W/R	
<b>C04-D2</b>	<b>Insulation test (megger)</b>	<b>EFR 02C</b>	WC	W/R	

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### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION SUBSTATION EQUIPMENT

#### QUALITY CONTROL ACTIVITIES

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C04-D3	Overvoltage test	EFR 02C	WC	W/R	
C04-D4	Vector group test	EFR 02D	WC	W/R	
C04-D5	Dielectric absorption and polarization index test	EFR 02E	WC	W/R	
C04-D6	Power factor test	EFR 02E	WC	W/R	
C04-D7	Turns ratio test	EFR 02F	WC	W/R	
C04-D8	On load tap changer tests	EFR 02G	WC	W/R	
C04-D9	Oil analysis	EFR 02H	WC	W/R	
C04-E	Final inspection	EFR 02A	WC	W/R	
C04-E1	Connection of primary and secondary cables	By Contractor.	WC	W/R	
C04-E2	Connection of auxiliary cables	By Contractor.	WC	W/R	
C04-E3	Bolted connections resistance measurement	By Contractor.	WC	W/R	
C04-E4	Surrounding area cleared	By Contractor.	WC	W/R	
C04-E5	Warning signs and posts installed	By Contractor.	WC	W/R	
C04-E6	As-built marked up copy updated and available	By Contractor.	WC	W/R	
C04-E7	Equipment ready for energization	By Contractor.	WC	W/R	
C04-F	Final Documentation Review	EFR 02A	P	R	
C05	<b>INSTALLATION OF REACTOR</b>				
C05-A	<b>Transportation and alignment</b>				
C05-A1	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	W/R	
C05-A2	Impact recorder inspection before unloading (if present)	By Contractor.	WC	W/R	
C05-A3	No indication of rough handling	By Contractor.	WC	W/R	
C05-A4	All shipping bracings removed	By Contractor.	WC	W/R	
C05-A5	Required area and equipment clearances	By Contractor.	WC	W/R	
C05-A6	Equipment correctly aligned and levelled	By Contractor.	WC	W/R	
C05-B	<b>Mechanical installation</b>				
C05-B1	Equipment correctly anchored on its foundation	By Contractor.	WC	W/R	
C05-B2	Equipment components (radiators, bushings, etc.) assembled correctly	By Contractor.	WC	W/R	

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### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION SUBSTATION EQUIPMENT

#### QUALITY CONTROL ACTIVITIES

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C05-B3	No missing hardware and accessory components not damaged	By Contractor.	WC	W/R	
C05-B4	Nameplates	By Contractor.	WC	W/R	
C05-B5	Insulating liquid filling and level check	By Contractor.	WC	W/R	
C05-B6	Absence of insulating liquid leakages	By Contractor.	WC	W/R	
C05-B7	Oil treatment (only where applicable)	By Contractor.	WC	W/R	
C05-B8	Operability of all valves (drain, sample, etc) and flange gaskets conditions	By Contractor.	WC	W/R	
<b>C05-C</b>	<b>Electrical installation</b>				
C05-C1	Bushings cleaned and ready for cable / bus duct connection	By Contractor.	WC	W/R	
C05-C2	Earthing connections done	By Contractor.	WC	W/R	
C05-C3	Surge arresters installed (if applicable)	By Contractor.	WC	W/R	
C05-C4	Correct operation of fans and oil pumps	By Contractor.	WC	W/R	
C05-C5	Correct operation of star point earthing switch (if applicable)	By Contractor.	WC	W/R	
C05-C6	Correct operation of Buchholz relay alarm and trip circuits	By Contractor.	WC	W/R	
C05-C7	Correct operation of oil level gauge alarm circuits	By Contractor.	WC	W/R	
C05-C8	Correct operation of winding and oil temp. detector alarm and trip circuits	By Contractor.	WC	W/R	
C05-C9	Correct operation of pressure devices trip circuits	By Contractor.	WC	W/R	
C05-C10	Insulation test for low voltage auxiliary circuits	By Contractor.	WC	W/R	
C05-C11	Protective devices settings	By Contractor.	WC	W/R	
<b>C05-D</b>	<b>Testing</b>	<b>EFR 02A</b>	WC	W/R	
<b>C05-D1</b>	<b>Winding resistance measurement</b>	<b>EFR 02C</b>	WC	W/R	
<b>C05-D2</b>	<b>Insulation test (megger)</b>	<b>EFR 02C</b>	WC	W/R	
<b>C05-D3</b>	<b>Overvoltage test</b>	<b>EFR 02C</b>	WC	W/R	
<b>C05-D4</b>	<b>Vector group test</b>	<b>EFR 02D</b>	WC	W/R	
<b>C05-D5</b>	<b>Dielectric absorption and polarization index test</b>	<b>EFR 02E</b>	WC	W/R	
<b>C05-D6</b>	<b>Power factor test</b>	<b>EFR 02E</b>	WC	W/R	
<b>C05-D7</b>	<b>Turns ratio test</b>	<b>EFR 02F</b>	WC	W/R	
<b>C05-D8</b>	<b>On load tap changer tests</b>	<b>EFR 02G</b>	WC	W/R	

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S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>C05-D9</b>	<b>Oil analysis</b>	<b>EFR 02H</b>	WC	W/R	
<b>C05-E</b>	<b>Final inspection</b>	<b>EFR 02A</b>	WC	W/R	
<b>C05-E1</b>	<b>Connection of primary and secondary cables</b>	By Contractor.	WC	W/R	
<b>C05-E2</b>	<b>Connection of auxiliary cables</b>	By Contractor.	WC	W/R	
<b>C05-E3</b>	<b>Bolted connections resistance measurement</b>	By Contractor.	WC	W/R	
<b>C05-E4</b>	<b>Surrounding area cleared</b>	By Contractor.	WC	W/R	
<b>C05-E5</b>	<b>Warning signs and posts installed</b>	By Contractor.	WC	W/R	
<b>C05-E6</b>	<b>As-built marked up copy updated and available</b>	By Contractor.	P	R	
<b>C05-E7</b>	<b>Equipment ready for energization</b>	By Contractor.	WC	W/R	
<b>C05-F</b>	<b>Final Documentation Review</b>	<b>EFR 02A</b>	<b>P</b>	<b>R</b>	
<b>C06</b>	<b>INSTALLATION OF MEDIUM VOLTAGE SWITCHGEARS AND MCCs</b>				
<b>C06-A</b>	<b>Transportation and alignment</b>				
C06-A1	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	R	
C06-A2	Impact recorder inspection before unloading (if present)	By Contractor.	WC	S	
C06-A3	No indication of rough handling	By Contractor.	WC	S	
C06-A4	All shipping bracings removed	By Contractor.	WC	S	
C06-A5	Required area and equipment clearances	By Contractor.	WC	W/R	
C06-A6	Panels correctly aligned and levelled	By Contractor.	WC	W/R	
<b>C06-B</b>	<b>Mechanical installation</b>				
C06-B1	Panels without mechanical damages and missing hardware	By Contractor.	WC	W/R	
C06-B2	Panels assembled, arranged and oriented correctly	By Contractor.	WC	W/R	
C06-B3	Panels anchorage, grounding and nameplate tagging	By Contractor.	WC	W/R	
C06-B4	Busbar connection ok	By Contractor.	WC	W/R	
C06-B5	Mechanical interlocks: attempt closure on locked-open devices	By Contractor.	WC	W/R	
C06-B6	Mechanical interlocks: attempt to open locked-closed devices	By Contractor.	WC	W/R	
C06-B7	Make key exchange with devices operated in off-normal position	By Contractor.	WC	W/R	
C06-B8	Inspect insulators for evidence of damage or surface contamination	By Contractor.	WC	W/R	

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S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C06-B9	Barriers and shutters operation checked	By Contractor.	WC	W/R	
C06-B10	Exercise all active components (doors, movement of withdrawable units.)	By Contractor.	WC	W/R	
C06-B11	Inspect all mechanical indicating devices for correct operation	By Contractor.	WC	W/R	
<b>C06-C</b>	<b>Electrical installation</b>				
C06-C1	Filter installed correctly and ventilation openings clear	By Contractor.	WC	W/R	
C06-C2	Fuses and breakers ratings verified	By Contractor.	WC	W/R	
C06-C3	Visual inspection on VTs and CTs	By Contractor.	WC	W/R	
C06-C4	VTs fuse / CB rating verification	By Contractor.	WC	W/R	
C06-C5	VTs and CTs drawout and grounding contacts & interlocks verification	By Contractor.	WC	W/R	
C06-C6	Instruments, relays and pilot lights verified as per requirements	By Contractor.	WC	W/R	
C06-C7	Instruments, relays and pilot lights wiring connections terminated properly	By Contractor.	WC	W/R	
C06-C8	Grounding connection satisfactory	By Contractor.	WC	W/R	
C06-C9	Terminal strips arrangement correct	By Contractor.	WC	W/R	
C06-C10	Fans operation check (where applicable)	By Contractor.	WC	W/R	
C06-C11	Completeness of accessories	By Contractor.	WC	W/R	
<b>C06-D</b>	<b>Testing</b>	<b>EFR 03A</b>	WC	W/R	
<b>C06-D1</b>	<b>Busbar Resistance, Insulation Resistance, Hi-Pot Test</b>	<b>EFR 03C</b>	WC	W/R	
<b>C06-D2</b>	<b>Automatic Transfer Switch</b>	<b>EFR 03F</b>	WC	W/R	
<b>C06-D3</b>	<b>Circuit Breakers – Electrical Tests</b>	<b>EFR 03G</b>	WC	W/R	
<b>C06-D4</b>	<b>Disconnect Switches - Electrical Tests</b>	<b>EFR 03H</b>	WC	W/R	
<b>C06-D5</b>	<b>Current Transformers</b>	<b>EFR 03K</b>	WC	W/R	
<b>C06-D6</b>	<b>Voltage Transformers</b>	<b>EFR 03L</b>	WC	W/R	
<b>C06-D7</b>	<b>Protective Relay / PLC I/O Assignment Report</b>	<b>EFR 03M</b>	WC	W/R	
<b>C06-D8</b>	<b>Protective Relay Testing Report</b>	<b>EFR 03N</b>	WC	W/R	
<b>C06-D9</b>	<b>Meters And Transducers Testing Report</b>	<b>EFR 03O</b>	WC	W/R	
<b>C06-E</b>	<b>Final inspection</b>	<b>EFR 03A</b>	<b>P</b>	<b>W/R</b>	
<b>C06-E1</b>	<b>Cable terminal connections, colour coding and tagging correct</b>	By Contractor.	WC	W/R	

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#### QUALITY CONTROL ACTIVITIES

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>C06-E2</b>	<b>Cabling done neatly and cable entries properly sealed</b>	By Contractor.	WC	W/R	
<b>C06-E3</b>	<b>Compartment labels as per requirement, identification &amp; warning labels complete</b>	By Contractor.	WC	W/R	
<b>C06-E4</b>	<b>As-built marked up copy updated and available</b>	By Contractor.	P	R	
<b>C06-F</b>	<b>Final Documentation Review</b>	<b>EFR 03A</b>	<b>P</b>	<b>R</b>	
<b>C07</b>	<b>INSTALLATION OF LOW VOLTAGE SWITCHGEARS AND MCCs</b>				
<b>C07-A</b>	<b>Transportation and alignment</b>				
C07-A1	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	W/R	
C07-A2	Impact recorder inspection before unloading (if present)	By Contractor.	WC	S	
C07-A3	No indication of rough handling	By Contractor.	WC	S	
C07-A4	All shipping bracings removed	By Contractor.	WC	S	
C07-A5	Required area and equipment clearances	By Contractor.	WC	W/R	
C07-A6	Panels correctly aligned and levelled	By Contractor.	WC	W/R	
<b>C07-B</b>	<b>Mechanical installation</b>				
C07-B1	Panels without mechanical damages and missing hardware	By Contractor.	WC	W/R	
C07-B2	Panels assembled, arranged and oriented correctly	By Contractor.	WC	W/R	
C07-B3	Panels anchorage, grounding and nameplate tagging	By Contractor.	WC	W/R	
C07-B4	Busbar connection ok	By Contractor.	WC	W/R	
C07-B5	Mechanical interlocks: attempt closure on locked-open devices	By Contractor.	WC	W/R	
C07-B6	Mechanical interlocks: attempt to open locked-closed devices	By Contractor.	WC	W/R	
C07-B7	Make key exchange with devices operated in off-normal position	By Contractor.	WC	W/R	
C07-B8	Inspect insulators for evidence of damage or surface contamination	By Contractor.	WC	W/R	
C07-B9	Barriers and shutters operation checked	By Contractor.	WC	W/R	
C07-B10	Exercise all active components (doors, movement of withdrawable units,)	By Contractor.	WC	W/R	
C07-B11	Inspect all mechanical indicating devices for correct operation	By Contractor.	WC	W/R	
<b>C07-C</b>	<b>Electrical installation</b>				
C07-C1	Filter installed correctly and ventilation openings clear	By Contractor.	WC	W/R	

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S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
		By Contractor.	WC		
C07-C2	Fuses and breakers ratings verified			W/R	
C07-C3	Visual inspection on VTs and CTs	By Contractor.	WC	W/R	
C07-C4	VTs fuse / CB rating verification	By Contractor.	WC	W/R	
C07-C5	VTs and CTs drawout and grounding contacts & interlocks verification	By Contractor.	WC	W/R	
C07-C6	Instruments, relays and pilot lights verified as per requirements	By Contractor.	WC	W/R	
C07-C7	Instruments, relays and pilot lights wiring connections terminated properly	By Contractor.	WC	W/R	
C07-C8	Grounding connection satisfactory	By Contractor.	WC	W/R	
C07-C9	Terminal strips arrangement correct	By Contractor.	WC	W/R	
C07-C10	Fans operation check (where applicable)	By Contractor.	WC	W/R	
C07-C11	Completeness of accessories	By Contractor.	WC	W/R	
<b>C07-D</b>	<b>Testing</b>	<b>EFR 03A</b>	WC	W/R	
<b>C07-D1</b>	<b>Busbar Resistance, Insulation Resistance, Hi-Pot Test</b>	<b>EFR 03C</b>	WC	W/R	
<b>C07-D2</b>	<b>Automatic Transfer Switch</b>	<b>EFR 03F</b>	WC	W/R	
<b>C07-D3</b>	<b>Circuit Breakers – Electrical Tests</b>	<b>EFR 03G</b>	WC	W/R	
<b>C07-D4</b>	<b>Disconnect Switches - Electrical Tests</b>	<b>EFR 03H</b>	WC	W/R	
<b>C07-D5</b>	<b>Current Transformers</b>	<b>EFR 03K</b>	WC	W/R	
<b>C07-D6</b>	<b>Voltage Transformers</b>	<b>EFR 03L</b>	WC	W/R	
<b>C07-D7</b>	<b>Protective Relay / PLC I/O Assignment Report</b>	<b>EFR 03M</b>	WC	W/R	
<b>C07-D8</b>	<b>Protective Relay Testing Report</b>	<b>EFR 03N</b>	WC	W/R	
<b>C07-D9</b>	<b>Meters And Transducers Testing Report</b>	<b>EFR 03O</b>	WC	W/R	
<b>C07-E</b>	<b>Final inspection</b>	<b>EFR 03A</b>	WC	W/R	
<b>C07-E1</b>	<b>Cable terminal connections, colour coding and tagging correct</b>	By Contractor.	WC	W/R	
<b>C07-E2</b>	<b>Cabling done neatly and cable entries properly sealed</b>	By Contractor.	WC	W/R	
<b>C07-E3</b>	<b>Compartment labels as per requirement, identification &amp; warning labels complete</b>	By Contractor.	WC	R	
<b>C07-E4</b>	<b>As-built marked up copy updated and available</b>	By Contractor.	P	R	
<b>C07-F</b>	<b>Final Documentation Review</b>	<b>EFR 03A</b>	<b>P</b>	<b>R</b>	

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S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>C08</b>	<b>INSTALLATION OF LOW VOLTAGE DISTRIBUTION AND AUXILIARY PANELS</b>				
<b>C08-A</b>	<b>Installation</b>				
C08-A1	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	W/R	
C08-A2	Panel assembled correctly, aligned and levelled	By Contractor.	WC	W/R	
C08-A3	Panel anchorage, grounding and nameplate tagging	By Contractor.	WC	W/R	
C08-A4	Panel without mechanical damages and missing hardware	By Contractor.	WC	W/R	
C08-A5	Required area and equipment clearances	By Contractor.	WC	W/R	
C08-A6	Fuses and breakers ratings verified	By Contractor.	WC	W/R	
C08-A7	Cable terminal connections, colour coding and tagging correct	By Contractor.	WC	W/R	
C08-A8	Electrical and mechanical interlocking systems operation correctness	By Contractor.	WC	W/R	
C08-A9	Filter installed correctly and ventilation openings clear	By Contractor.	WC	W/R	
C08-A10	Instruments, relays and pilot lights verified as per requirements	By Contractor.	WC	W/R	
C08-A11	Instruments, relays and pilot lights wiring connections terminated properly	By Contractor.	WC	W/R	
<b>C08-B</b>	<b>Testing</b>	<b>EFR 03D</b>	WC	W/R	
<b>C08-B1</b>	<b>Power/Lighting Distribution Panel Functional Test</b>	<b>EFR 03E</b>	WC	W/R	
<b>C08-B2</b>	<b>Protective Relay / PLC I/O Assignment Report</b>	<b>EFR 03M</b>	WC	W/R	
<b>C08-B3</b>	<b>Protective Relay Testing Report</b>	<b>EFR 03N</b>	WC	W/R	
<b>C08-B4</b>	<b>Capacitors And Power Factor Controllers Test</b>	<b>EFR 03P</b>	WC	W/R	
<b>C08-B5</b>	<b>Neutral Grounding Resistor And Earth Fault Monitoring System Test</b>	<b>EFR 03Q</b>	WC	W/R	
<b>C08-B6</b>	<b>SCADA System Test</b>	<b>EFR 03R</b>	WC	W/R	
<b>C08-B7</b>	<b>Alarm Panel Test</b>	<b>EFR 03S</b>	WC	W/R	
<b>C08-C</b>	<b>Final inspection</b>	<b>EFR 03D</b>	WC	W/R	
<b>C08-C1</b>	<b>Cabling done neatly and cable entries properly sealed</b>	By Contractor.	WC	W/R	
<b>C08-C2</b>	<b>Compartment labels as per requirement, identification &amp; warning labels complete</b>	By Contractor.	WC	W/R	
<b>C08-C3</b>	<b>As-built marked up copy updated and available</b>	By Contractor.	P	R	
<b>C08-D</b>	<b>Final Documentation Review</b>	<b>EFR 03D</b>	<b>P</b>	<b>R</b>	

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S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>C09</b>	<b>INSTALLATION OF BUS DUCTS</b>				
<b>C09-A</b>	<b>Prefabrication of supports</b>				
C09-A1	Supports prefabricated	By Contractor.	WC	W/R	
<b>C09-B</b>	<b>Installation of supports</b>				
C09-B1	Supports & hangers installed properly	By Contractor.	WC	W/R	
C09-B2	Installation & layout as per approved drawings	By Contractor.	WC	W/R	
C09-B3	Cold galvanizing touch-up paint applied where required	By Contractor.	WC	W/R	
<b>C09-C</b>	<b>Mechanical installation</b>				
C09-C1	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	R	
C09-C2	Bus duct assembled and oriented correctly, aligned and levelled	By Contractor.	WC	S	
C09-C3	Bus duct anchorage, grounding and nameplate tagging	By Contractor.	WC	S	
C09-C4	Bus duct without mechanical damages and missing hardware	By Contractor.	WC	S	
C09-C5	Bus duct adequate bracing and suspension	By Contractor.	WC	S	
C09-C6	Bus duct enclosure flanges connected and bolts tightened	By Contractor.	WC	W/R	
C09-C7	No evident tension, strain or abnormal stresses	By Contractor.	WC	W/R	
C09-C8	Wall penetrations and vapour barrier installed correctly	By Contractor.	WC	W/R	
C09-C9	Bus duct enclosure space heaters connected (if any)	By Contractor.	WC	W/R	
C09-C10	Correct Installation of Silica Gel Breather (if any)	By Contractor.	WC	W/R	
C09-C11	External enclosure grounding	By Contractor.	WC	W/R	
C09-C12	Drainage hole plugs removed (if any)	By Contractor.	WC	W/R	
C09-C13	Joints insulation (if applicable)	By Contractor.	WC	W/R	
<b>C09-D</b>	<b>Electrical installation</b>				
<b>C09-E</b>	<b>Testing</b>	<b>EFR 03J</b>	<b>WC</b>	<b>W/R</b>	
<b>C09-F</b>	<b>Final inspection</b>	<b>EFR 03I</b>	<b>WC</b>	<b>W/R</b>	
<b>C09-F1</b>	<b>Final visual inspection</b>	By Contractor.	WC	W/R	
<b>C09-F2</b>	<b>As-built marked up copy updated and available</b>	By Contractor.	P	R	
<b>C09-G</b>	<b>Final Documentation Review</b>	<b>EFR 03I</b>	<b>WC</b>	<b>W/R</b>	
<b>C11</b>	<b>INSTALLATION OF GROUNDING RESISTORS</b>				

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### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION SUBSTATION EQUIPMENT

#### QUALITY CONTROL ACTIVITIES

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>C11-A</b>	<b>Installation</b>				
C11-A1	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	R	
C11-A2	Panel assembled correctly, aligned and levelled	By Contractor.	WC	S	
C11-A3	Panel anchorage, grounding and nameplate tagging	By Contractor.	WC	S	
C11-A4	Panel without mechanical damages and missing hardware	By Contractor.	WC	S	
C11-A5	Required area and equipment clearances	By Contractor.	WC	W/R	
C11-A6	Fuses and breakers ratings verified	By Contractor.	WC	W/R	
C11-A7	Cable terminal connections, color coding and tagging correct	By Contractor.	WC	S	
C11-A8	Electrical and mechanical interlocking systems operation correctness	By Contractor.	WC	W/R	
C11-A9	Filter installed correctly and ventilation openings clear	By Contractor.	WC	W/R	
C11-A10	Instruments, relays and pilot lights verified as per requirements	By Contractor.	WC	W/R	
C11-A11	Instruments, relays and pilot lights wiring connections terminated properly	By Contractor.	WC	W/R	
<b>C11-B</b>	<b>Testing</b>	<b>EFR 03D</b>	WC	W/R	
<b>C11-B1</b>	<b>Power/Lighting Distribution Panel Functional Test</b>	<b>EFR 03E</b>	WC	W/R	
<b>C11-B2</b>	<b>Protective Relay / PLC I/O Assignment Report</b>	<b>EFR 03M</b>	WC	W/R	
<b>C11-B3</b>	<b>Protective Relay Testing Report</b>	<b>EFR 03N</b>	WC	W/R	
<b>C11-B4</b>	<b>Capacitors And Power Factor Controllers Test</b>	<b>EFR 03P</b>	WC	W/R	
<b>C11-B5</b>	<b>Neutral Grounding Resistor And Earth Fault Monitoring System Test</b>	<b>EFR 03Q</b>	WC	W/R	
<b>C11-B6</b>	<b>SCADA System Test</b>	<b>EFR 03R</b>	WC	W/R	
<b>C11-B7</b>	<b>Alarm Panel Test</b>	<b>EFR 03S</b>	WC	W/R	
<b>C11-C</b>	<b>Final inspection</b>	<b>EFR 03D</b>	WC	W/R	
<b>C11-C1</b>	<b>Cabling done neatly and cable entries properly sealed</b>	By Contractor.	WC	W/R	
<b>C11-C2</b>	<b>Compartment labels as per requirement, identification &amp; warning labels complete</b>	By Contractor.	WC	W/R	
<b>C11-C3</b>	<b>As-built marked up copy updated and available</b>	By Contractor.	P	R	
<b>C11-D</b>	<b>Final Documentation Review</b>	<b>EFR 03D</b>	<b>P</b>	<b>R</b>	
<b>C12</b>	<b>INSTALLATION OF UPS SYSTEMS</b>				

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S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>C12-A</b>	<b>Mechanical installation</b>				
C12-A1	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	W/R	
C12-A2	UPS panels assembled correctly, aligned and leveled	By Contractor.	WC	W/R	
C12-A3	UPS panels anchorage, grounding and nameplate tagging	By Contractor.	WC	W/R	
C12-A4	UPS panels without mechanical damages and missing hardware	By Contractor.	WC	W/R	
C12-A5	Required area and equipment clearances	By Contractor.	WC	W/R	
C12-A6	Fuses and breakers ratings verified	By Contractor.	WC	W/R	
C12-A7	Cable terminal connections, colour coding and tagging correct	By Contractor.	WC	W/R	
C12-A8	Electrical and mechanical interlocking systems operation correctness	By Contractor.	WC	W/R	
C12-A9	Filter installed correctly and ventilation openings clear	By Contractor.	WC	W/R	
C12-A10	Fans operation check	By Contractor.	WC	W/R	
C12-A11	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	W/R	
<b>C12-B</b>	<b>Electrical installation</b>				
C12-B1	Insulation test and bolted connection resistance	By Contractor.	WC	W/R	
<b>C12-C</b>	<b>Final inspection</b>	<b>EFR 04A</b>	<b>WC</b>	<b>W/R</b>	
<b>C12-C1</b>	<b>Cabling done neatly and cable entries properly sealed</b>	By Contractor.	WC	W/R	
<b>C12-C2</b>	<b>Compartment labels as per requirement, identification &amp; warning labels complete</b>	By Contractor.	WC	W/R	
<b>C12-C3</b>	<b>As-built marked up copy updated and available</b>	By Contractor.	P	R	
<b>C12-D</b>	<b>Final Documentation Review</b>	<b>EFR 04A</b>	<b>P</b>	<b>R</b>	
<b>C13</b>	<b>INSTALLATION OF DC CHARGERS</b>				
<b>C13-A</b>	<b>Mechanical installation</b>				
C13-A1	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	W/R	
C13-A2	DC System assembled correctly, aligned and levelled	By Contractor.	WC	W/R	
C13-A3	DC System anchorage, grounding and nameplate tagging	By Contractor.	WC	W/R	
C13-A4	DC System without mechanical damages and missing hardware	By Contractor.	WC	W/R	
C13-A5	Required area and equipment clearances	By Contractor.	WC	W/R	
C13-A6	Fuses and breakers ratings verified	By Contractor.	WC	W/R	

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S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C13-A7	Cable terminal connections, colour coding and tagging correct	By Contractor.	WC	W/R	
C13-A8	Electrical and mechanical interlocking systems operation correctness	By Contractor.	WC	W/R	
C13-A9	Filter installed correctly and ventilation openings clear	By Contractor.	WC	W/R	
C13-A10	Fans operation check	By Contractor.	WC	W/R	
<b>C13-B</b>	<b>Electrical installation</b>				
C13-B1	Insulation test and bolted connection resistance	By Contractor.	WC	W/R	
<b>C13-C</b>	<b>Testing</b>	<b>EFR 04C</b>	<b>WC</b>	<b>W/R</b>	
<b>C13-C1</b>	<b>Functional test, distribution board</b>	<b>EFR 04E</b>	<b>WC</b>	<b>W/R</b>	
<b>C13-D</b>	<b>Final inspection</b>	<b>EFR 04C</b>	<b>WC</b>	<b>W/R</b>	
<b>C13-D1</b>	<b>Cabling done neatly and cable entries properly sealed</b>	By Contractor.	WC	W/R	
<b>C13-D2</b>	<b>Compartment labels as per requirement, identification &amp; warning labels complete</b>	By Contractor.	WC	W/R	
<b>C13-D3</b>	<b>As-built marked up copy updated and available</b>	By Contractor.	P	R	
<b>C13-E</b>	<b>Final Documentation Review</b>	<b>EFR 04C</b>	<b>P</b>	<b>R</b>	
<b>C14</b>	<b>INSTALLATION OF BATTERIES</b>				
<b>C14-A</b>	<b>Rack and batteries installation</b>				
C14-A1	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	W/R	
C14-A2	Battery rack assembled correctly and aligned	By Contractor.	WC	W/R	
C14-A3	Battery rack anchorage, grounding and nameplate tagging	By Contractor.	WC	W/R	
C14-A4	Battery rack without evidence of damage, corrosion or coating defects	By Contractor.	WC	W/R	
C14-A5	Batteries without mechanical damages	By Contractor.	WC	W/R	
C14-A6	Batteries secured and cleaned	By Contractor.	WC	W/R	
C14-A7	Batteries positioning, orientation and numbering correct	By Contractor.	WC	W/R	
C14-A8	Cable terminal connections, colour coding and tagging correct	By Contractor.	WC	W/R	
<b>C14-B</b>	<b>Battery connection and filling</b>				
C14-B1	Corroded / oxidized intercell or terminal connections cleaned	By Contractor.	WC	W/R	
C14-B2	Corrosion inhibiting grease applied on intercell and terminal connections	By Contractor.	WC	W/R	

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#### QUALITY CONTROL ACTIVITIES

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C14-B3	Electrolyte correctly mixed and filled up to the required level (Wet cells only)	By Contractor.	WC	W/R	
C14-B4	Check of excessive cover/jar distortion (Valve regulated cells only)	By Contractor.	WC	W/R	
C14-B5	Absence of cracks and leakages	By Contractor.	WC	W/R	
C14-B6	Battery connection	By Contractor.	WC	W/R	
C14-B7	Polarity interconnection correct	By Contractor.	WC	W/R	
C14-B8	Completeness of accessories (intercell connection caps, etc.)	By Contractor.	WC	W/R	
<b>C14-C</b>	<b>Final inspection</b>	<b>EFR 04F</b>	<b>P</b>	<b>R</b>	
<b>C14-C1</b>	<b>Assembly and installation complete</b>	By Contractor.	WC	W/R	
<b>C14-C2</b>	<b>As-built marked up copy updated and available</b>	By Contractor.	P	R	
<b>C14-D</b>	<b>Final Documentation Review</b>	<b>EFR 04F</b>	<b>P</b>	<b>R</b>	
<b>C15</b>	<b>INSTALLATION OF VARIABLE FREQUENCY DRIVES</b>				
<b>C15-A</b>	<b>Mechanical installation</b>				
C15-A1	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	W/R	
C15-A2	VFD assembled correctly, aligned and levelled	By Contractor.	WC	W/R	
C15-A3	VFD anchorage, grounding and nameplate tag	By Contractor.	WC	W/R	
C15-A4	VFD without mech. damage & missing hardware	By Contractor.	WC	W/R	
C15-A5	Required area and equipment clearances	By Contractor.	WC	W/R	
C15-A6	Fuses and breakers ratings verified	By Contractor.	WC	W/R	
C15-A7	Cable terminal connections, colour coding and tagging correct	By Contractor.	WC	W/R	
C15-A8	Electrical and mechanical interlocking systems operation correctness	By Contractor.	WC	W/R	
C15-A9	Filter installed correctly and ventilation openings clear	By Contractor.	WC	W/R	
C15-A10	Fans operation check	By Contractor.	WC	W/R	
<b>C15-B</b>	<b>Electrical installation</b>				
C15-B1	Insulation test and bolted connection resistance	By Contractor.	WC	W/R	
<b>C15-C</b>	<b>Final inspection</b>	<b>EFR 04H</b>	<b>WC</b>	<b>W/R</b>	
<b>C15-C1</b>	<b>Assembly and installation complete</b>	By Contractor.	WC	W/R	
<b>C15-C2</b>	<b>As-built marked up copy updated and available</b>	By Contractor.	WC	W/R	
<b>C15-D</b>	<b>Final Documentation Review</b>	<b>EFR 04H</b>	<b>P</b>	<b>R</b>	

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S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>C16</b>	<b>INSTALLATION OF ELECTRICAL CONTROL SYSTEM</b>				
<b>C16-A</b>	<b>Installation</b>				
C16-A1	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	W/R	
C16-A2	Panel assembled correctly, aligned and levelled	By Contractor.	WC	W/R	
C16-A3	Panel anchorage, grounding and nameplate tagging	By Contractor.	WC	W/R	
C16-A4	Panel without mechanical damages and missing hardware	By Contractor.	WC	W/R	
C16-A5	Required area and equipment clearances	By Contractor.	WC	W/R	
C16-A6	Fuses and breakers ratings verified	By Contractor.	WC	W/R	
C16-A7	Cable terminal connections, colour coding and tagging correct	By Contractor.	WC	W/R	
C16-A8	Filter installed correctly and ventilation openings clear	By Contractor.	WC	W/R	
C16-A9	Instrument, relays and pilot lights verified as per requirements	By Contractor.	WC	W/R	
C18-A10	Panel switches properly assembled and connected	By Contractor.	WC	W/R	
<b>C16-B</b>	<b>Testing</b>	<b>EFR 03R &amp; EFR 04I</b>	<b>WC</b>	<b>W/R</b>	
<b>C16-B1</b>	<b>SCADA System Test</b>	<b>EFR 03R &amp; EFR 04I</b>	<b>WC</b>	<b>W/R</b>	
<b>C16-C</b>	<b>Final inspection</b>	<b>EFR 03R &amp; EFR 04I</b>	<b>WC</b>	<b>W/R</b>	
<b>C16-C1</b>	<b>Cabling done neatly and cable entries properly sealed</b>	By Contractor.	WC	W/R	
<b>C16-C2</b>	<b>Compartment labels as per requirement, identification &amp; warning labels complete</b>	By Contractor.	WC	W/R	
<b>C16-C3</b>	<b>As-built marked up copy updated and available</b>	By Contractor.	P	R	
<b>C16-D</b>	<b>Final Documentation Review</b>	By Contractor.	P	R	
<b>C17</b>	<b>INSTALLATION OF LOAD BANK (If any)</b>				
<b>C17-A</b>	<b>Installation</b>				
C17-A1	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	W/R	
C17-A2	Panel / equipment assembled correctly, aligned and levelled	By Contractor.	WC	W/R	
C17-A3	Panel / equipment anchorage, grounding and nameplate tagging	By Contractor.	WC	W/R	
C17-A4	Panel / equipment without mechanical damages and missing hardware	By Contractor.	WC	W/R	
C17-A5	Required area and equipment clearances	By Contractor.	WC	W/R	

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S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C17-A6	Cable terminal connections, color coding and tagging correct	By Contractor.	WC	W/R	
C17-A7	Electrical and mechanical interlocking systems operation correctness	By Contractor.	WC	W/R	
C17-A8	Equipment and ventilation fan correctly assembled	By Contractor.	WC	W/R	
C17-A9	Instruments, relays and pilot lights verified as per requirements	By Contractor.	WC	W/R	
C17-A10	Instruments, relays and pilot lights wiring connections terminated properly	By Contractor.	WC	W/R	
C17-A11	Nameplate check	By Contractor.	WC	W/R	
C17-A12	Connection of primary and secondary cables	By Contractor.	WC	W/R	
C17-A13	Connection of auxiliary cables	By Contractor.	WC	W/R	
C17-A14	Bolted connections resistance measurement	By Contractor.	WC	W/R	
C17-A15	Surrounding area cleared	By Contractor.	WC	W/R	
<b>C17-B</b>	<b>Testing</b>	<b>EFR 04J</b>	<b>WC</b>	<b>W/R</b>	
<b>C17-B1</b>	<b>Resistance of Load Bank and Continuity &amp; Insulation Tests</b>	By Contractor.	WC	W/R	
<b>C17-C</b>	<b>Final inspection</b>	<b>EFR 04J</b>	<b>WC</b>	<b>W/R</b>	
<b>C17-C1</b>	<b>Cabling done neatly and cable entries properly sealed</b>	By Contractor.	WC	W/R	
<b>C17-C2</b>	<b>Compartment labels as per requirement, identification &amp; warning labels complete</b>	By Contractor.	WC	W/R	
<b>C17-C3</b>	<b>As-built marked up copy updated and available</b>	N.A.	P	R	
<b>C17-D</b>	<b>Final Documentation Review</b>	<b>EFR 04J</b>	<b>P</b>	<b>R</b>	
<b>C18</b>	<b>INSTALLATION OF ELECTRICAL LOAD SHEDDING (If any)</b>				
<b>C18-A</b>	<b>Installation</b>				
C18-A1	Compliance of equipment rating and nameplate with documentation	By Contractor.	WC	W/R	
C18-A2	Panel assembled correctly, aligned and levelled	By Contractor.	WC	W/R	
C18-A3	Panel anchorage, grounding and nameplate tagging	By Contractor.	WC	W/R	
C18-A4	Panel without mechanical damages and missing hardware	By Contractor.	WC	W/R	
C18-A5	Required area and equipment clearances	By Contractor.	WC	W/R	
C18-A6	Fuses and breakers ratings verified	By Contractor.	WC	W/R	
C18-A7	Cable terminal connections, color coding and tagging correct	By Contractor.	WC	W/R	
C18-A8	Filter installed correctly and ventilation openings clear	By Contractor.	WC	W/R	
C18-A9	Devices and pilot lights wiring connections terminated properly	By Contractor.	WC	W/R	

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			CONTR.	TECHNIP	
C18-A10	Panel switches properly assembled and connected	By Contractor.	WC	W/R	
<b>C18-B</b>	<b>Testing</b>	<b>EFR 04K</b>	<b>WC</b>	<b>W/R</b>	
<b>C18-B1</b>	<b>Capacitors And Power Factor Controllers Test</b>	<b>EFR 03P</b>	WC	W/R	
<b>C18-C</b>	<b>Final inspection</b>	<b>EFR 04K</b>	<b>WC</b>	<b>W/R</b>	
<b>C18-C1</b>	<b>Cabling done neatly and cable entries properly sealed</b>	By Contractor.	WC	W/R	
<b>C18-C2</b>	<b>Compartment labels as per requirement, identification &amp; warning labels complete</b>	By Contractor.	WC	W/R	
<b>C18-C3</b>	<b>As-built marked up copy updated and available</b>	By Contractor.	P	R	
<b>C18-D</b>	<b>Final Documentation Review</b>	<b>EFR 04K</b>	<b>P</b>	<b>R</b>	

#### NOTES:

- (1) A copy of the document will be delivered to Owner for information.

#### GENERAL NOTES

- THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THEJOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY TECHNIP AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN- CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF TECHNIP HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.
- CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT TO TECHNIP/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.



PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 02A

PROJ. No.:

QCF REV.

SH. 1 OF 3

**TRANSFORMERS AND REACTORS  
MECHANICAL INSTALL. / ELECTRICAL INSTALL. /  
SUMMARY REPORT**

CONTRACTOR:

EFR 02A N° \_\_\_\_

**GENERAL DATA**

Location / area:

System / subsystem:

Date (dd/mm/yy):

Transformer  Reactor

Tag:

Manufacturer:

Serial no.:

Rated kVA:

Rated V<sub>cc</sub>%:

Primary kV:

Secondary kV:

INSPECTIONS  
(Ref. to QCP 1620.01)

N.A.

ACC.

REPORT /  
REFERENCE

INSPECTOR SIGNATURE & DATE

CONTRACTOR

TECHNIP

OWNER

**A - Transportation and alignment**

A1.	Compliance of equipment rating and nameplate with documentation	<input type="checkbox"/>	<input type="checkbox"/>
A2.	Impact recorder inspection before unloading (if present)	<input type="checkbox"/>	<input type="checkbox"/>
A3.	No indication of rough handling	<input type="checkbox"/>	<input type="checkbox"/>
A4.	All shipping bracings removed	<input type="checkbox"/>	<input type="checkbox"/>
A5.	Required area and equipment clearances	<input type="checkbox"/>	<input type="checkbox"/>
A6.	Equipment correctly aligned and levelled	<input type="checkbox"/>	<input type="checkbox"/>

**B - Mechanical installation**

B1.	Equipment correctly anchored on its foundation	<input type="checkbox"/>	<input type="checkbox"/>
B2.	Equipment components (radiators, bushings, etc.) assembled correctly	<input type="checkbox"/>	<input type="checkbox"/>
B3.	No missing hardware and accessory components not damaged	<input type="checkbox"/>	<input type="checkbox"/>
B4.	Nameplates	<input type="checkbox"/>	<input type="checkbox"/>
B5.	Insulating liquid filling and level check	<input type="checkbox"/>	<input type="checkbox"/>
B6.	Absence of insulating liquid leakages	<input type="checkbox"/>	<input type="checkbox"/>
B7.	Oil treatment (only where applicable)	<input type="checkbox"/>	<input type="checkbox"/>
B8.	Operability of all valves (drain, sample, etc) and flange gaskets conditions	<input type="checkbox"/>	<input type="checkbox"/>

Pressure gage readings (hermetically sealed transformers only) (\*)

MPa

Date:

Time:

Silica gel conditions

Ok

Replace

REMARKS :



TechnipFMC



PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 02A

PROJ. No.:

QCF REV.

SH. 2 OF 3

**TRANSFORMERS AND REACTORS  
MECHANICAL INSTALL. / ELECTRICAL INSTALL. /  
SUMMARY REPORT**

CONTRACTOR:

EFR 02A N° \_\_\_\_

INSPECTIONS  
(Ref. to QCP 1620.01)

N.A.

ACC.

REPORT /  
REFERENCE

INSPECTOR SIGNATURE & DATE

CONTRACTOR

TECHNIP

OWNER

**C - Electrical installation**

C1.	Bushings cleaned and ready for cable / bus duct connection	<input type="checkbox"/>	<input type="checkbox"/>
C2.	Ensure proper earthing connections and measure earthing resistance.	<input type="checkbox"/>	<input type="checkbox"/>
C3.	Surge arresters installed (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
C4.	Correct operation of fans and oil pumps	<input type="checkbox"/>	<input type="checkbox"/>
C5.	Correct operation of star point earthing switch (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
C6.	Correct operation of Buchholz relay alarm and trip circuits	<input type="checkbox"/>	<input type="checkbox"/>
C7.	Correct operation of oil level gauge alarm circuits	<input type="checkbox"/>	<input type="checkbox"/>
C8.	Correct operation of winding and oil temp. detector alarm and trip circuits	<input type="checkbox"/>	<input type="checkbox"/>
C9.	Correct operation of pressure devices trip circuits	<input type="checkbox"/>	<input type="checkbox"/>
C10.	Insulation test for low voltage auxiliary circuits	<input type="checkbox"/>	<input type="checkbox"/>
C11.	Protective devices settings	<input type="checkbox"/>	<input type="checkbox"/>

**INSULATION TEST (MEGGER) FOR LOW VOLTAGE AUXILIARY CIRCUITS (\*)**

Megger manuf.:	Type:	Calibration date:	Recalibration date:	
Time (hh/mm):	Amb. temperature:	<input type="checkbox"/> °C <input type="checkbox"/> °F	Humidity: %	
Auxiliary circuits	Test performed at ____ V DC for ____ min	Value	Pass	Fail
	Acceptance criteria: I. R. > ____ MΩ	MΩ	<input type="checkbox"/>	<input type="checkbox"/>

**PROTECTIVE DEVICES SETTINGS (\*)**

Winding temperature device settings	Alarm	Required °C	Found °C	Left °C
	Trip	Required °C	Found °C	Left °C
Oil temperature device settings	Alarm	Required °C	Found °C	Left °C
	Trip	Required °C	Found °C	Left °C

**D - Testing**

D1.	Winding resistance measurement	<input type="checkbox"/>	<input type="checkbox"/>	EFR 02C (**)
D2.	Insulation test (megger)	<input type="checkbox"/>	<input type="checkbox"/>	EFR 02C (**)
D3.	Overvoltage test	<input type="checkbox"/>	<input type="checkbox"/>	EFR 02C (**)
D4.	Vector group test	<input type="checkbox"/>	<input type="checkbox"/>	EFR 02D (**)
D5.	Dielectric absorption and polarization index test	<input type="checkbox"/>	<input type="checkbox"/>	EFR 02E (**)
D6.	Power factor test	<input type="checkbox"/>	<input type="checkbox"/>	EFR 02E (**)
D7.	Turns ratio test	<input type="checkbox"/>	<input type="checkbox"/>	EFR 02F (**)
D8.	On load tap changer tests	<input type="checkbox"/>	<input type="checkbox"/>	EFR 02G (**)
D9.	Oil analysis	<input type="checkbox"/>	<input type="checkbox"/>	EFR 02H (**)

(\*) The relevant data shall be indicated on remarks rows

(\*\*) THE QC REPORTS N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES :

EFR 02C N° \_\_\_\_ EFR 02D N° \_\_\_\_ EFR 02E N° \_\_\_\_ EFR 02F N° \_\_\_\_ EFR 02G N° \_\_\_\_ EFR 02H N° \_\_\_\_

REMARKS :







PROJECT:

OWNER:

QUALITY CONTROL FORM

**EFR 02D**

PROJ. No.:

QCF REV.

SH. 1 OF 1

**TRANSFORMERS AND REACTORS  
TRANSFORMER VECTOR GROUP TEST**

CONTRACTOR:

**EFR 02D N° \_\_\_\_\_**

**GENERAL DATA**

Location / area:		System / subsystem:		Date (dd/mm/yy):	
Transformer tag:		Manufacturer:		Serial no.:	
Rated kVA:	Rated $V_{cc}\%$ :	Primary kV:	Secondary kV:		

**VECTOR GROUP TEST**

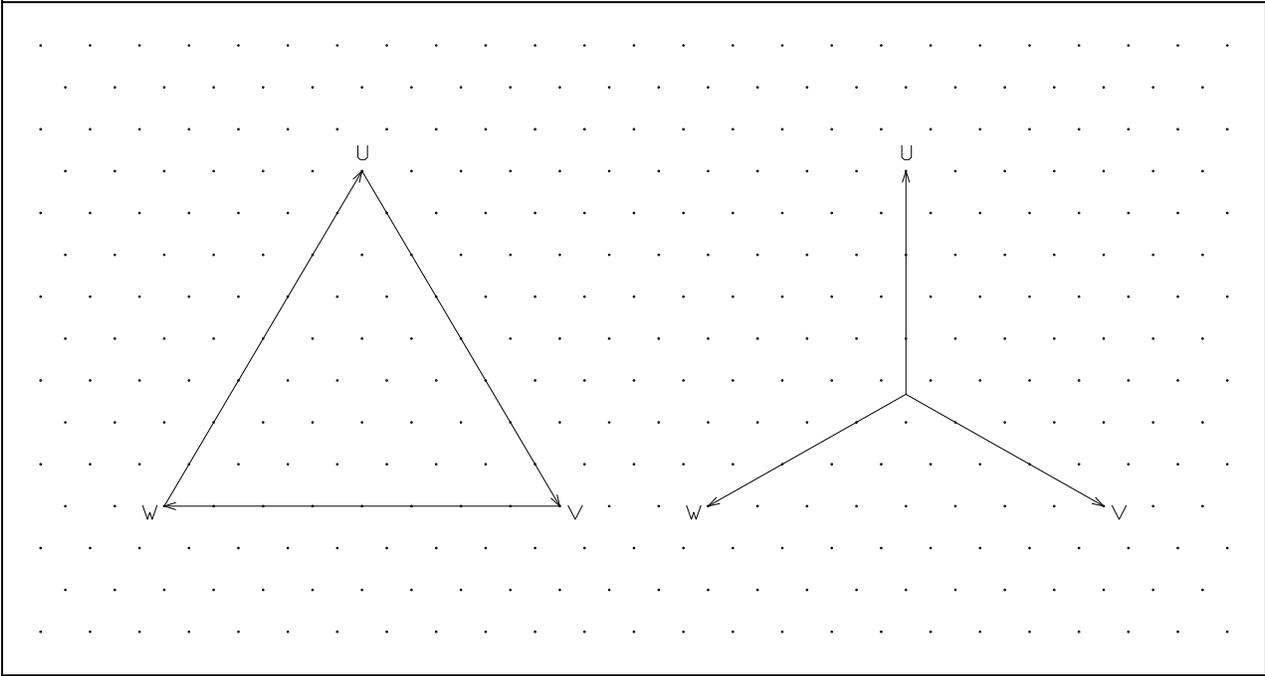
Primary phases U, V, W		Secondary phases u, v, w	
Primary voltage, line to line	kV	Primary voltage, line to neutral	kV
Secondary voltage, line to line	kV	Secondary voltage, line to neutral	kV
Voltage ratio		Testing voltage (primary)	V

1 – Connect phase U with phase u      2 – Energize primary winding (U, V, W) with low voltage, 3-phase power supply

3 – Measure voltages: between V and v, W and w, V and w, W and v

V to v	Volts	W to w	Volts	V to w	Volts	W to v	Volts
--------	-------	--------	-------	--------	-------	--------	-------

**VECTOR DIAGRAM**



**VECTOR COMPARISON**

Vw	<input type="checkbox"/> >	<input type="checkbox"/> <	<input type="checkbox"/> =	Ww	Vw	<input type="checkbox"/> >	<input type="checkbox"/> <	<input type="checkbox"/> =	UV	Vv	<input type="checkbox"/> >	<input type="checkbox"/> <	<input type="checkbox"/> =	Vw	vw	<input type="checkbox"/> >	<input type="checkbox"/> <	<input type="checkbox"/> =	Wv
	<input type="checkbox"/> >	<input type="checkbox"/> <	<input type="checkbox"/> =			<input type="checkbox"/> >	<input type="checkbox"/> <	<input type="checkbox"/> =			<input type="checkbox"/> >	<input type="checkbox"/> <	<input type="checkbox"/> =			<input type="checkbox"/> >	<input type="checkbox"/> <	<input type="checkbox"/> =	

Required group      Found group      Acceptable       Yes       No

REMARKS:

INSPECTORS	CONTRACTOR	TECHNIP	OWNER
NAME			
SIGNATURE			
DATE			

 		PROJECT:	
		OWNER:	
QUALITY CONTROL FORM <b>EFR 02E</b>		PROJ. No.:	QCF REV.      SH. 1 OF 1
<b>TRANSFORMERS AND REACTORS DIELECTRIC TESTS</b>		CONTRACTOR: <b>EFR 02E N° _____</b>	
<b>GENERAL DATA</b>			
Location / area:		System / subsystem:	
Date (dd/mm/yy):			
<input type="checkbox"/> Transformer <input type="checkbox"/> Reactor	Tag:	Manufacturer:	Serial no.:
Rated kVA:	Rated V <sub>cc</sub> %:	Primary kV:	Secondary kV:
<b>DIELECTRIC ABSORPTION (D.A.) AND POLARIZATION INDEX (P.I.) TEST</b>			
Tester manuf.:		Type:	
Calibration date:		Recalibration date:	
Time (hh/mm):	Amb. temperature:	<input type="checkbox"/> °C <input type="checkbox"/> °F	Humidity: _____ %
Primary (HV) side			Secondary (LV) side
Test performed at _____ kV DC			Test performed at _____ kV DC
Time	L1 to GND	L2 to GND	L3 to GND
30 "	MΩ	MΩ	MΩ
1 '	MΩ	MΩ	MΩ
10 '	MΩ	MΩ	MΩ
D.A. = 1' / 30 "			
P. I. = 10' / 1'			
Acceptance criteria: D. A. > _____		Acceptable	<input type="checkbox"/> Yes <input type="checkbox"/> No
Acceptance criteria: P. I. > _____		Acceptable	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>POWER FACTOR TEST</b>			
Tester manuf.:		Type:	
Calibration date:		Recalibration date:	
Time (hh/mm):	Amb. temperature:	<input type="checkbox"/> °C <input type="checkbox"/> °F	Humidity: _____ %
Test performed at _____ V AC			
HV L1 to ground	HV L2 to ground	HV L3 to ground	LV L1 to ground
Loss (W)	Loss (W)	Loss (W)	Loss (W)
% PF	% PF	% PF	% PF
CH (nF)	CH (nF)	CH (nF)	CL (nF)
CL (nF)	CL (nF)	CL (nF)	CHL (nF)
CH = Capacitance of H winding to ground CL = Capacitance of L winding to ground CHL = Capacitance between H and L windings			
Acceptance criteria: % PF ≤ _____		<input type="checkbox"/> when corrected to _____ °C	Acceptable <input type="checkbox"/> Yes <input type="checkbox"/> No
REMARKS :			
<b>INSPECTORS</b>		<b>CONTRACTOR</b>	
<b>TECHNIP</b>		<b>OWNER</b>	
NAME			
SIGNATURE			
DATE			



PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 02F

PROJ. No.:

QCF REV.

SH. 1 OF 1

**TRANSFORMERS AND REACTORS  
TRANSFORMERS TURNS RATIO TEST**

CONTRACTOR:

EFR 02F N° \_\_\_\_

**GENERAL DATA**

Location / area:	System / subsystem:	Date (dd/mm/yy):	
Transformer tag:	Manufacturer:	Serial no.:	
Rated kVA:	Rated V <sub>cc</sub> %:	Primary kV:	Secondary kV:

**TURNS RATIO TEST**

Tester manuf.:	Type:	Calibration date:	Recalibration date:		
Range:	kV AC	Frequency:	Hz	Test voltage:	V AC

<b>PHASE</b>													<input type="checkbox"/> L1	<input type="checkbox"/> U	<input type="checkbox"/> R
Tap		Voltages		Calculated Ratio	Primary V		Secondary V		Measured ratio		Primary I				
Prog	%	Primary	Secondary		V	Angle	V	Angle	Absolute	%	mA	Angl			
1															
2															
3															
4															
5															
6															
7															
8															
9															

<b>PHASE</b>													<input type="checkbox"/> L2	<input type="checkbox"/> V	<input type="checkbox"/> Y
Tap		Voltages		Calculated Ratio	Primary V		Secondary V		Measured ratio		Primary I				
Prog	%	Primary	Secondary		V	Angle	V	Angle	Absolute	%	mA	Angl			
1															
2															
3															
4															
5															
6															
7															
8															
9															

<b>PHASE</b>													<input type="checkbox"/> L3	<input type="checkbox"/> W	<input type="checkbox"/> B
Tap		Voltages		Calculated Ratio	Primary V		Secondary V		Measured ratio		Primary I				
Prog	%	Primary	Secondary		V	Angle	V	Angle	Absolute	%	mA	Angl			
1															
2															
3															
4															
5															
6															
7															
8															
9															

REMARKS :

<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>TECHNIP</b>	<b>OWNER</b>
NAME			
SIGNATURE			
DATE			

 		PROJECT:									
		OWNER:									
QUALITY CONTROL FORM <b>EFR 02G</b>		PROJ. No.:	QCF REV.	SH. 1 OF 1							
<b>TRANSFORMERS AND REACTORS TRANSFORMER ON LOAD / OFF LOAD TAP CHANGER TESTS</b>		CONTRACTOR:		EFR 02G N° ____							
<b>GENERAL DATA</b>											
Location / area:		System / subsystem:		Date (dd/mm/yy):							
Associated transformer tag:		OLTC Manufacturer:		Serial no.:							
Tapping range: ± _____ %		Step %: _____		No. of steps: _____							
<b>MAIN SETTINGS</b>											
	Set value	Actual value	Acceptable								
Time delay - Raise	s	VDC	<input type="checkbox"/> Yes	<input type="checkbox"/> No							
Time delay - Lower	s	VDC	<input type="checkbox"/> Yes	<input type="checkbox"/> No							
Voltage level	V	VDC	<input type="checkbox"/> Yes	<input type="checkbox"/> No							
Bandwidth	%	VDC	<input type="checkbox"/> Yes	<input type="checkbox"/> No							
<b>FUNCTIONAL TEST</b>											
Type	Testing		Type	Testing							
Raise / Lower Off	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Position indicators	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail						
Auto / Manual	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Counter	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail						
Local / remote	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Operation through full range of taps	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail						
Timer - Raise		s	PU	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail						
Timer - Lower		s	PU	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail						
<b>URNS RATIO TEST</b>											
Tester manuf.:		Type:	Calibration date:	Recalibration date:							
Range:	kV AC	Frequency:	Hz	Primary voltage:	V AC						
Tap	Secondary Voltage	Calculated Ratio	Measured ratio			Tap	Secondary Voltage	Calculated Ratio	Measured ratio		
#	No.		L1	L2	L3	#	No.		L1	L2	L3
1	16L					18	1R				
2	15L					19	2R				
3	14L					20	3R				
4	13L					21	4R				
5	12L					22	5R				
6	11L					23	6R				
7	10L					24	7R				
8	9L					25	8R				
9	8L					26	9R				
10	7L					27	10R				
11	6L					28	11R				
12	5L					29	12R				
13	4L					30	13R				
14	3L					31	14R				
15	2L					32	15R				
16	1L					33	16R				
17	N										
REMARKS:											
<b>INSPECTORS</b>			<b>CONTRACTOR</b>			<b>TECHNIP</b>			<b>OWNER</b>		
NAME											
SIGNATURE											
DATE											





 		PROJECT:					
		OWNER:					
QUALITY CONTROL FORM <b>EFR 03A</b>		PROJ. No.:	QCF REV.	SH. 2 OF 2			
<b>SWITCHGEAR AND CONTROLGEAR MECHANICAL INSTALL. / ELECTRICAL INSTALL. SUMMARY REPORT</b>		CONTRACTOR:		EFR 03A N° _____			
INSPECTIONS (Ref. to QCP 1620.01)		N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
					CONTRACTOR	TECHNIP	OWNER
<b>C - Electrical installation</b>							
C1.	Filter installed correctly and ventilation openings clear	<input type="checkbox"/>	<input type="checkbox"/>				
C2.	Fuses and breakers ratings verified	<input type="checkbox"/>	<input type="checkbox"/>				
C3.	Visual inspection on VTs and CTs	<input type="checkbox"/>	<input type="checkbox"/>				
C4.	VTs fuse / CB rating verification	<input type="checkbox"/>	<input type="checkbox"/>				
C5.	VTs and CTs drawout and grounding contacts & interlocks verification	<input type="checkbox"/>	<input type="checkbox"/>				
C6.	Instruments, relays and pilot lights verified as per requirements	<input type="checkbox"/>	<input type="checkbox"/>				
C7.	Instruments, relays and pilot lights wiring connections terminated properly	<input type="checkbox"/>	<input type="checkbox"/>				
C8.	Grounding connection satisfactory	<input type="checkbox"/>	<input type="checkbox"/>				
C9.	Terminal strips arrangement correct	<input type="checkbox"/>	<input type="checkbox"/>				
C10.	Fans operation check (where applicable)	<input type="checkbox"/>	<input type="checkbox"/>				
C11.	Completeness of accessories	<input type="checkbox"/>	<input type="checkbox"/>				
<b>D - Testing</b>							
D1.	Busbar Resistance, Insulation Resistance, Hi-Pot Test	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03C(*)			
D2.	Automatic Transfer Switch	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03F(*)			
D3.	Circuit Breakers – Electrical Tests	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03G(*)			
D4.	Disconnect Switches - Electrical Tests	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03H(*)			
D5.	Current Transformers	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03K(*)			
D6.	Voltage Transformers	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03L(*)			
D7.	Protective Relay / PLC I/O Assignment Report	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03M(*)			
D8.	Protective Relay Testing Report	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03N(*)			
D9.	Meters And Transducers Testing Report	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03O(*)			
<b>E - Final inspection</b>							
E1.	Cable terminal connections, color coding and tagging correct	<input type="checkbox"/>	<input type="checkbox"/>				
E2.	Cabling done neatly and cable entries properly sealed	<input type="checkbox"/>	<input type="checkbox"/>				
E3.	Compartment labels as per requirement, identification & warning labels complete	<input type="checkbox"/>	<input type="checkbox"/>				
E4.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>				
(*) THE QC REPORTS N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES :							
EFR 03C N° _____ EFR 03F N° _____ EFR 03G N° _____ EFR 03H N° _____ EFR 03K N° _____							
EFR 03L N° _____ EFR 03M N° _____ EFR 03N N° _____ EFR 03O N° _____							
REMARKS :							
F- Final Doc. Review	<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>TECHNIP</b>	<b>OWNER</b>			
	NAME						
	SIGNATURE						
	DATE						



PROJECT:

OWNER:

QUALITY CONTROL FORM

**EFR 03C**

PROJ. No.:

QCF REV.

SH. 1 OF 1

**SWITCHGEAR AND CONTROLGEAR  
BUSBAR RESISTANCE, INSULATION RESISTANCE,  
HI-POT TEST**

CONTRACTOR:

**EFR 03C N° \_\_\_\_\_**

**GENERAL DATA**

Location / area:	System / subsystem:	Date (dd/mm/yy):
Manufacturer:	Type:	Serial no.:
Rated voltage:	Rated current:	Rated SC kA:
Tag number:	Ref. drawings:	

**BOLTS TIGHTENING**

Torque wrench manufacturer:	Type:	Calibration date:	Recalibration date:
Bolt size (M) / Tightening Torque (Nm)	M / Nm	M / Nm	M / Nm

**BOLTED CONNECTION RESISTANCE / HEATERS TEST**

LR ohmmeter manuf./type:	Test current: A	Calibration date:	Recalibration date:				
Contact resistance							LV heaters test (Insulation / heating)
#	Section ID	Phase L1	Phase L2	Phase L3	Neutral	Ground	
1		$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
2		$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
3		$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
4		$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
5		$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
6		$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
7		$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
8		$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
9		$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
10		$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
11		$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
12		$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
13		$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
14		$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA

Note: An outline drawing showing the bus duct sections identification shall be attached to this form.

**INSULATION TEST**

Megger manufacturer:	Type:	Calibration date:	Recalibration date:		
Test kV	Voltage <input type="checkbox"/> AC <input type="checkbox"/> DC	Insulation resistance			
		Phase L1 to ground	Phase L2 to ground	Phase L3 to ground	Neutral to ground
		M $\Omega$	M $\Omega$	M $\Omega$	M $\Omega$

**HIGH POTENTIAL TEST** Required  Yes  No

Hipot equipment manufacturer:	Type:	Calibration date:	Recalibration date:		
Test kV	Voltage <input type="checkbox"/> AC <input type="checkbox"/> DC	Leakage currents			
		Phase L1 to ground	Phase L2 to ground	Phase L3 to ground	Neutral to ground
		$\mu A$	$\mu A$	$\mu A$	$\mu A$

REMARKS :

INSPECTORS	CONTRACTOR	TECHNIP	OWNER
NAME			
SIGNATURE			
DATE			

 		PROJECT:					
		OWNER:					
QUALITY CONTROL FORM <b>EFR 03D</b>		PROJ. No.:	QCF REV.	SH. 1 OF 1			
<b>SWITCHGEAR AND CONTROLGEAR AUXILIARY PANEL INSTALLATION SUMMARY REPORT</b>		CONTRACTOR:		EFR 03D N° ____			
<b>GENERAL DATA</b>							
Location / area:		System / subsystem:		Date (dd/mm/yy):			
Manufacturer:		Type:		Serial no.:			
<input type="checkbox"/> Lighting distribution panel	<input type="checkbox"/> Power distribution panel	<input type="checkbox"/> MOV distribution panel	<input type="checkbox"/> Diesel genset control panel				
<input type="checkbox"/> Synchr. excitation panel	<input type="checkbox"/> E/I marshalling cabinet	<input type="checkbox"/> Substation alarm panel	<input type="checkbox"/> Protective relay rack				
<input type="checkbox"/> Metering equipment panel	<input type="checkbox"/> Substation control panel	<input type="checkbox"/> Substation command panel	<input type="checkbox"/> Capacitor bank				
<input type="checkbox"/> Neutral grounding resistor	<input type="checkbox"/> NGR panel	<input type="checkbox"/> SCADA system	<input type="checkbox"/> Other _____				
Rated voltage:		Rated current:		Rated SC kA:			
Tag number:		Ref. drawings:					
INSPECTIONS (Ref. to QCP 1620.01)		N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
					CONTRACTOR	TECHNIP	OWNER
<b>A - Installation</b>							
A1.	Compliance of equipment rating and nameplate with documentation	<input type="checkbox"/>	<input type="checkbox"/>				
A2.	Panel assembled correctly, aligned and levelled	<input type="checkbox"/>	<input type="checkbox"/>				
A3.	Panel anchorage, grounding and nameplate tagging	<input type="checkbox"/>	<input type="checkbox"/>				
A4.	Panel without mechanical damages and missing hardware	<input type="checkbox"/>	<input type="checkbox"/>				
A5.	Required area and equipment clearances	<input type="checkbox"/>	<input type="checkbox"/>				
A6.	Fuses and breakers ratings verified	<input type="checkbox"/>	<input type="checkbox"/>				
A7.	Cable terminal connections, color coding and tagging correct	<input type="checkbox"/>	<input type="checkbox"/>				
A8.	Electrical and mechanical interlocking systems operation correctness	<input type="checkbox"/>	<input type="checkbox"/>				
A9.	Filter installed correctly and ventilation openings clear	<input type="checkbox"/>	<input type="checkbox"/>				
A10.	Instruments, relays and pilot lights verified as per requirements	<input type="checkbox"/>	<input type="checkbox"/>				
A11.	Instruments, relays and pilot lights wiring connections terminated properly	<input type="checkbox"/>	<input type="checkbox"/>				
<b>B - Testing</b>							
B1.	Power/Lighting Distribution Panel Functional Test	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03E(*)			
B2.	Protective Relay / PLC I/O Assignment Report	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03M(*)			
B3.	Protective Relay Testing Report	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03N(*)			
B4.	Capacitors and Power Factor Controllers Test	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03P(*)			
B5.	Neutral Grounding Resistor and Earth Fault Monitoring System Test	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03Q(*)			
B6.	SCADA System Test	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03R(*)			
B7.	Alarm Panel Test	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03S(*)			
<b>C - Final inspection</b>							
C1.	Cabling done neatly and cable entries properly sealed	<input type="checkbox"/>	<input type="checkbox"/>				
C2.	Compartment labels as per requirement, identification & warning labels complete	<input type="checkbox"/>	<input type="checkbox"/>				
C3.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>				
(*) THE QC REPORTS N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES :							
EFR 03E N° ____ EFR 03M N° ____ EFR 03N N° ____ EFR 03P N° ____ EFR 03Q N° ____ EFR 03R N° ____ EFR 03S N° ____							
REMARKS :							
<b>D- Final Doc. Review</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>TECHNIP</b>	<b>OWNER</b>			
	NAME						
	SIGNATURE						
	DATE						

 		PROJECT:												
		OWNER:												
QUALITY CONTROL FORM <b>EFR 03E</b>		PROJ. No.:	QCF REV.	SH. 1 OF 1										
<b>SWITCHGEAR AND CONTROLGEAR POWER/LIGHTING DISTRIBUTION PANEL FUNCTIONAL TEST</b>		CONTRACTOR:		EFR 03E N° ____										
<b>GENERAL DATA</b>														
Location / area:		System / subsystem:		Date (dd/mm/yy):										
Manufacturer:		Type:		Serial no.:										
<input type="checkbox"/> Lighting distribution panel		<input type="checkbox"/> Power distribution panel		<input type="checkbox"/> Other _____										
Rated voltage:		Rated current:		Rated SC kA:										
Tag number:			Ref. drawings:											
<b>TESTING</b>														
Multimeter manuf.:		Type:		Calibration date:										
<b>MAIN BREAKERS OPERATION</b>														
#	Tag	Open		Close		Continuity		Aux. contacts			Res. current			
		Pass	Fail	Pass	Fail	Pass	Fail	P	F	NA	P	F	NA	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>BRANCH BREAKERS OPERATION</b>														
#	Circuit	Open		Close		Continuity		Aux. contacts			Res. current			
		Pass	Fail	Pass	Fail	Pass	Fail	P	F	NA	P	F	NA	
1.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>CONTROL OPERATION</b>														
Manual mode		Pass	<input type="checkbox"/>	Fail	<input type="checkbox"/>	Auto mode			Pass	<input type="checkbox"/>	Fail	<input type="checkbox"/>		
<b>CONTROL DEVICES OPERATION</b>														
Selector switches		Pass	<input type="checkbox"/>	Fail	<input type="checkbox"/>	Measuring instruments			Pass	<input type="checkbox"/>	Fail	<input type="checkbox"/>		
Lights		Pass	<input type="checkbox"/>	Fail	<input type="checkbox"/>				Pass	<input type="checkbox"/>	Fail	<input type="checkbox"/>		
REMARKS :														
<b>INSPECTORS</b>		<b>CONTRACTOR</b>			<b>TECHNIP</b>			<b>OWNER</b>						
NAME														
SIGNATURE														
DATE														

 		PROJECT:												
		OWNER:												
QUALITY CONTROL FORM		<b>EFR 03F</b>	PROJ. No.:	QCF REV.	SH. 1 OF 1									
<b>SWITCHGEAR AND CONTROLGEAR AUTO CHANGE OVER</b>			CONTRACTOR:		<b>EFR 03F N° _____</b>									
<b>GENERAL DATA</b>														
Location / area:		System / subsystem:		Date (dd/mm/yy):										
Switchgear manufacturer:		Type:		Serial no.:										
Rated voltage:		Rated current:		Rated SC kA:										
Tag number:			Ref. drawings:											
<b>TIME DELAYS</b>														
Multimeter manuf./type:		Test voltage: V	Calibration date:		Recalibration date:									
Function		Applicable		Set value	Actual value	Acceptable								
Momentary loss of power override		<input type="checkbox"/> Yes	<input type="checkbox"/> No	s	s	<input type="checkbox"/> Yes	<input type="checkbox"/> No							
Transfer to backup / emergency source		<input type="checkbox"/> Yes	<input type="checkbox"/> No	s	s	<input type="checkbox"/> Yes	<input type="checkbox"/> No							
Retransfer to normal		<input type="checkbox"/> Yes	<input type="checkbox"/> No	s	s	<input type="checkbox"/> Yes	<input type="checkbox"/> No							
Diesel engine cooling down		<input type="checkbox"/> Yes	<input type="checkbox"/> No	s	s	<input type="checkbox"/> Yes	<input type="checkbox"/> No							
<b>UNDERVOLTAGE RELAY TEST</b>														
Relay			Undervoltage		Time	Phases	Acceptable							
Source "A"	Set voltage	Set time	Pickup	V	s		<input type="checkbox"/> Yes	<input type="checkbox"/> No						
	V	s	Dropout	V										
Source "B"	Set voltage	Set time	Pickup	V	s		<input type="checkbox"/> Yes	<input type="checkbox"/> No						
	V	s	Dropout	V										
<b>FUNCTIONAL TEST</b>														
Type		Testing		Type		Testing								
Loss of power inc. "A"		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Return of power inc. "B"		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail							
Return of power inc. "A"		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Fault _____		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail							
Simulate loss of power inc. "B"		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Fault _____		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail							
<b>SYNCHROCHECK FUNCTION TEST</b>														
$\Delta V$ function ( $V_1 = \text{Line}, V_2 = \text{Bus}$ )				$\Delta \alpha$ function ( $\alpha_1 = \text{Line}, \alpha_2 = \text{Bus}$ )				$\Delta f$ function ( $f_1 = \text{Line}, f_2 = \text{Bus}$ )						
Set $V_1 > V_2 = V$		Set $V_1 < V_2 = V$		Set $\alpha_1 > \alpha_2 = ^\circ$		Set $\alpha_1 < \alpha_2 = ^\circ$		Set $f_1 > f_2 = \text{Hz}$		Set $f_1 < f_2 = \text{Hz}$				
Line volts $V_1$	Bus volts $V_2$	$\Delta V$	Synchro		Line angl $\alpha_1$	Bus angl $\alpha_2$	$\Delta \alpha$	Synchro		Line freq $f_1$	Bus freq $f_2$	$\Delta f$	Synchro	
			Yes	No				Yes	No				Yes	No
V	V	V	<input type="checkbox"/>	<input type="checkbox"/>	$^\circ$	$^\circ$	$^\circ$	<input type="checkbox"/>	<input type="checkbox"/>	Hz	Hz	Hz	<input type="checkbox"/>	<input type="checkbox"/>
V	V	V	<input type="checkbox"/>	<input type="checkbox"/>	$^\circ$	$^\circ$	$^\circ$	<input type="checkbox"/>	<input type="checkbox"/>	Hz	Hz	Hz	<input type="checkbox"/>	<input type="checkbox"/>
V	V	V	<input type="checkbox"/>	<input type="checkbox"/>	$^\circ$	$^\circ$	$^\circ$	<input type="checkbox"/>	<input type="checkbox"/>	Hz	Hz	Hz	<input type="checkbox"/>	<input type="checkbox"/>
V	V	V	<input type="checkbox"/>	<input type="checkbox"/>	$^\circ$	$^\circ$	$^\circ$	<input type="checkbox"/>	<input type="checkbox"/>	Hz	Hz	Hz	<input type="checkbox"/>	<input type="checkbox"/>
V	V	V	<input type="checkbox"/>	<input type="checkbox"/>	$^\circ$	$^\circ$	$^\circ$	<input type="checkbox"/>	<input type="checkbox"/>	Hz	Hz	Hz	<input type="checkbox"/>	<input type="checkbox"/>
Energization checks		$V_1 > 0, V_2 = 0$ (Live Line, Dead Bus)		<input type="checkbox"/> Ok	<input type="checkbox"/> Not Ok	$V_1 > 0, V_2 > 0$ (Live Line, Live Bus)		<input type="checkbox"/> Ok	<input type="checkbox"/> Not Ok					
		$V_1 = 0, V_2 = 0$ (Dead Line, Dead Bus)		<input type="checkbox"/> Ok	<input type="checkbox"/> Not Ok	$V_1 = 0, V_2 > 0$ (Dead Line, Live Bus)		<input type="checkbox"/> Ok	<input type="checkbox"/> Not Ok					
REMARKS :														
<b>INSPECTORS</b>			<b>CONTRACTOR</b>			<b>TECHNIP</b>			<b>OWNER</b>					
NAME														
SIGNATURE														
DATE														

 		PROJECT:									
		OWNER:									
QUALITY CONTROL FORM		<b>EFR 03G</b>	PROJ. No.:	QCF REV.	SH. 1 OF 1						
<b>SWITCHGEAR AND CONTROLGEAR CIRCUIT BREAKERS – ELECTRICAL TESTS</b>			CONTRACTOR:		<b>EFR 03G N° _____</b>						
<b>GENERAL DATA</b>											
Location / area:		System / subsystem:		Date (dd/mm/yy):							
Switchgear manufacturer:		Type:		Serial no.:							
Rated voltage:		Rated current:		Rated SC kA:							
Tag number:			Ref. drawings:								
<b>PRE-TEST CHECKS</b>											
#	Check	Ok	Not Ok	Remarks							
1.	Correct identification and location as per drawings	<input type="checkbox"/>	<input type="checkbox"/>								
2.	Inspect physical and mechanical conditions	<input type="checkbox"/>	<input type="checkbox"/>								
3.	Check of breaker size and type	<input type="checkbox"/>	<input type="checkbox"/>								
4.	Arc dividers/shields undamaged, where supplied	<input type="checkbox"/>	<input type="checkbox"/>								
5.	Verify trip-free and antipump function	<input type="checkbox"/>	<input type="checkbox"/>								
6.	Oil level and dielectric strength (oil circuit breakers)	<input type="checkbox"/>	<input type="checkbox"/>								
7.	SF <sub>6</sub> density (SF <sub>6</sub> breakers only)	<input type="checkbox"/>	<input type="checkbox"/>								
8.	SF <sub>6</sub> gas pressure alarms operation (SF <sub>6</sub> breakers)	<input type="checkbox"/>	<input type="checkbox"/>								
9.	Vacuum bottle integrity (Vacuum breakers only)	<input type="checkbox"/>	<input type="checkbox"/>								
<b>CONTACT RESISTANCE TEST</b>											
LR ohmmeter manuf./type:		Test current:	A	Calibration date:	Recalibration date:						
Switchgear	Tag	Cubicle	Phase L1	Phase L2	Phase L3	Neutral					
			μΩ	μΩ	μΩ	μΩ					
<b>INSULATION TEST (MEGGER)</b>											
Megger manuf.:		Type:	Calibration date:	Recalibration date:							
Pole to frame		Pole to pole		Line to load							
Test performed at ___ kV DC for ___ min		Test performed at ___ kV DC for ___ min		Test performed at ___ kV DC for ___ min							
	Value	Pass	Fail		Value	Pass	Fail		Value	Pass	Fail
L1	MΩ	<input type="checkbox"/>	<input type="checkbox"/>	L1-L2	MΩ	<input type="checkbox"/>	<input type="checkbox"/>	L1-L1	MΩ	<input type="checkbox"/>	<input type="checkbox"/>
L2	MΩ	<input type="checkbox"/>	<input type="checkbox"/>	L2-L3	MΩ	<input type="checkbox"/>	<input type="checkbox"/>	L2-L2	MΩ	<input type="checkbox"/>	<input type="checkbox"/>
L3	MΩ	<input type="checkbox"/>	<input type="checkbox"/>	L1-L3	MΩ	<input type="checkbox"/>	<input type="checkbox"/>	L3-L3	MΩ	<input type="checkbox"/>	<input type="checkbox"/>
N	MΩ	<input type="checkbox"/>	<input type="checkbox"/>	N-L123	MΩ	<input type="checkbox"/>	<input type="checkbox"/>	N-N	MΩ	<input type="checkbox"/>	<input type="checkbox"/>
Acceptance criteria: I. R. > ___ MΩ			Acceptance criteria: I. R. > ___ MΩ			Acceptance criteria: I. R. > ___ MΩ					
<b>FUNCTIONAL TEST</b>											
Type	Testing		Type	Testing							
Electrical interlocks	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Trip	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail						
Mechanical interlocks	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Test position	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail						
Open	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Heater operation	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail						
Close	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Insulation test on control circuits	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail						
<b>VOLTAGE PICKUP TEST</b>											
Shunt trip	Voltage	Range	Pickup voltage								
Close coil	Voltage	Range	Pickup voltage								
REMARKS :											
<b>INSPECTORS</b>		<b>CONTRACTOR</b>		<b>TECHNIP</b>		<b>OWNER</b>					
NAME											
SIGNATURE											
DATE											

 		PROJECT:									
		OWNER:									
QUALITY CONTROL FORM <b>EFR 03H</b>		PROJ. No.:	QCF REV.	SH. 1 OF 1							
<b>SWITCHGEAR AND CONTROLGEAR DISCONNECT SWITCHES – ELECTRICAL TESTS</b>		CONTRACTOR:		<b>EFR 03H N° _____</b>							
<b>GENERAL DATA</b>											
Location / area:		System / subsystem:		Date (dd/mm/yy):							
Switchgear manufacturer:		Type:		Serial no.:							
Rated voltage:		Rated current:		Rated SC kA:							
Tag number:			Ref. drawings:								
<b>PRE-TEST CHECKS</b>											
#	Check	Ok	Not Ok	Remarks							
1.	Correct identification and location as per drawings	<input type="checkbox"/>	<input type="checkbox"/>								
2.	Inspect physical and mechanical conditions	<input type="checkbox"/>	<input type="checkbox"/>								
3.	Check of disconnect switch size and type	<input type="checkbox"/>	<input type="checkbox"/>								
4.	Check of fuse size and type	<input type="checkbox"/>	<input type="checkbox"/>								
5.	Arc dividers/shields undamaged, where supplied	<input type="checkbox"/>	<input type="checkbox"/>								
6.	Vacuum bottle integrity (Vacuum contactors only)	<input type="checkbox"/>	<input type="checkbox"/>								
<b>CONTACT RESISTANCE TEST</b>											
LR ohmmeter manuf./type:		Test current: A	Calibration date:	Recalibration date:							
Switchgear	Tag	Cubicle	Resistances	Phase L1 to load	Phase L2 to load	Phase L3 to load					
			Contact resistance	$\mu\Omega$	$\mu\Omega$	$\mu\Omega$					
			Fuse resistance	m $\Omega$	m $\Omega$	m $\Omega$					
			Fuse holder resistance	m $\Omega$	m $\Omega$	m $\Omega$					
<b>INSULATION TEST (MEGGER)</b>											
Megger manuf.:		Type:	Calibration date:	Recalibration date:							
Pole to frame			Pole to pole			Line to load					
Test performed at ___ kV DC for ___ min			Test performed at ___ kV DC for ___ min			Test performed at ___ kV DC for ___ min					
	Value	Pass	Fail		Value	Pass	Fail		Value	Pass	Fail
L1	M $\Omega$	<input type="checkbox"/>	<input type="checkbox"/>	L1-L2	M $\Omega$	<input type="checkbox"/>	<input type="checkbox"/>	L1-L1	M $\Omega$	<input type="checkbox"/>	<input type="checkbox"/>
L2	M $\Omega$	<input type="checkbox"/>	<input type="checkbox"/>	L2-L3	M $\Omega$	<input type="checkbox"/>	<input type="checkbox"/>	L2-L2	M $\Omega$	<input type="checkbox"/>	<input type="checkbox"/>
L3	M $\Omega$	<input type="checkbox"/>	<input type="checkbox"/>	L1-L3	M $\Omega$	<input type="checkbox"/>	<input type="checkbox"/>	L3-L3	M $\Omega$	<input type="checkbox"/>	<input type="checkbox"/>
Acceptance criteria: I. R. > _____ M $\Omega$			Acceptance criteria: I. R. > _____ M $\Omega$			Acceptance criteria: I. R. > _____ M $\Omega$					
<b>FUNCTIONAL TEST</b>											
Type		Testing		Type		Testing					
Electrical interlocks		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Trip		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail				
Mechanical interlocks		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Test position		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail				
Open		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Heater operation		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail				
Close		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	Insulation test on control circuits		<input type="checkbox"/> Pass	<input type="checkbox"/> Fail				
REMARKS :											
<b>INSPECTORS</b>			<b>CONTRACTOR</b>			<b>TECHNIP</b>			<b>OWNER</b>		
NAME											
SIGNATURE											
DATE											



 		PROJECT:						
		OWNER:						
QUALITY CONTROL FORM <b>EFR 03J</b>		PROJ. No.:	QCF REV.	SH. 1 OF 1				
<b>SWITCHGEAR AND CONTROLGEAR BUS DUCT - ELECTRICAL INSTALLATION AND TEST</b>		CONTRACTOR:		<b>EFR 03J N°</b> _____				
<b>GENERAL DATA</b>								
Tag N° :								
Location / area:		System / subsystem:		Date (dd/mm/yy):				
Manufacturer:		Type:	Serial no.:	Ph: <input type="checkbox"/> 3 <input type="checkbox"/> 3+N <input type="checkbox"/> 3+N+PE				
Rated voltage: V		Rated current: A	Rated SC kA:	Length: m				
Construction <input type="checkbox"/> Segregated phase <input type="checkbox"/> Non-segregated phase			Ref. drawings:					
<b>BOLTS TIGHTENING</b>								
Torque wrench manufacturer:		Type:	Calibration date:	Recalibration date:				
Bolt size (M) / Tightening Torque (Nm)		M / Nm	M / Nm	M / Nm				
<b>BOLTED CONNECTION RESISTANCE / HEATERS TEST</b>								
LR ohmmeter manuf./type:		Test current: A	Calibration date:	Recalibration date:				
Contact resistance								LV heaters test (Insulation / heating)
#	Section ID	Indoor / Outdoor	Phase L1	Phase L2	Phase L3	Neutral	Ground	
1			μΩ	μΩ	μΩ	μΩ	μΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
2			μΩ	μΩ	μΩ	μΩ	μΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
3			μΩ	μΩ	μΩ	μΩ	μΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
4			μΩ	μΩ	μΩ	μΩ	μΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
5			μΩ	μΩ	μΩ	μΩ	μΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
6			μΩ	μΩ	μΩ	μΩ	μΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
7			μΩ	μΩ	μΩ	μΩ	μΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
8			μΩ	μΩ	μΩ	μΩ	μΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
9			μΩ	μΩ	μΩ	μΩ	μΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
10			μΩ	μΩ	μΩ	μΩ	μΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
11			μΩ	μΩ	μΩ	μΩ	μΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
12			μΩ	μΩ	μΩ	μΩ	μΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
13			μΩ	μΩ	μΩ	μΩ	μΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
14			μΩ	μΩ	μΩ	μΩ	μΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> NA
Note: A key plan showing the bus duct sections identification shall be attached to this form.								
<b>INSULATION TEST</b>								
Megger manufacturer:		Type:	Calibration date:	Recalibration date:				
Test kV	Voltage <input type="checkbox"/> AC <input type="checkbox"/> DC	Insulation resistance						
		Phase L1 to Gnd	Phase L2 to Gnd	Phase L3 to Gnd	Neutral to Gnd			
		MΩ	MΩ	MΩ	MΩ			
<b>HIGH POTENTIAL TEST</b> Required <input type="checkbox"/> Yes <input type="checkbox"/> No								
Hipot equipment manufacturer:		Type:	Calibration date:	Recalibration date:				
Test kV	Voltage <input type="checkbox"/> AC <input type="checkbox"/> DC	Leakage currents						
		Phase L1 to Gnd	Phase L2 to Gnd	Phase L3 to Gnd	Neutral to Gnd			
		μA	μA	μA	μA			
REMARKS :								
<b>INSPECTORS</b>		<b>CONTRACTOR</b>		<b>TECHNIP</b>		<b>OWNER</b>		
NAME								
SIGNATURE								
DATE								



PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 03K

PROJ. No.:

QCF REV.

SH. 1 OF 1

**SWITCHGEAR AND CONTROLGEAR  
CURRENT TRANSFORMERS**

CONTRACTOR:

EFR 03K N° \_\_\_\_\_

**GENERAL DATA**

Location / area:	System / subsystem:	Date (dd/mm/yy):
Switchgear:	Cubicle:	Tag:
		Ref. drawing:

**CURRENT TRANSFORMER DATA**

N.	Manufacturer	Model	Serial n.	Function	Primary A	Secondary A	Accuracy class	Burden (VA)
1.								
2.								
3.								

**PRE-TEST CHECKS**

#	Check	Ok	Not Ok	Remarks
1.	Mounting & location as per drawings	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Clearance between primary and secondary circuits	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Withdrawal mechanism (where applicable)	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Correctness of fuse sizes	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Tightness of electrical connections	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Short circuiting connections functionality	<input type="checkbox"/>	<input type="checkbox"/>	
7.	Grounding connections	<input type="checkbox"/>	<input type="checkbox"/>	

**CURRENT RATIO AND POLARITY CHECK**

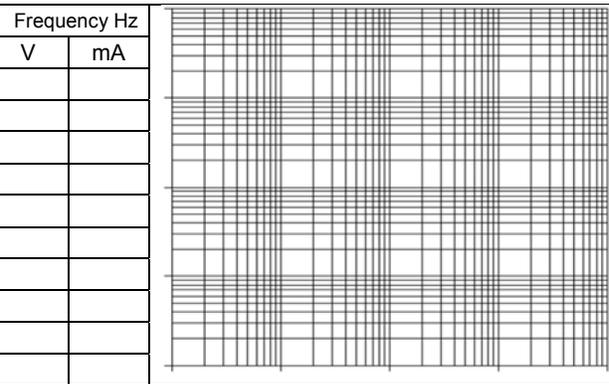
Tester manuf.:	Type:	Calibration date:	Recalibration date:
----------------	-------	-------------------	---------------------

N.	Location	Taps	Ratio	Voltage / Current		Accuracy	Polarity check			Pass	Fail
				Applied	Measured		%	VDC	Primary		
1.										<input type="checkbox"/>	<input type="checkbox"/>
2.										<input type="checkbox"/>	<input type="checkbox"/>
3.										<input type="checkbox"/>	<input type="checkbox"/>

**INSULATION TEST (MEGGER)**

**SATURATION TEST**

Megger manuf.:	Type:
Calibration date:	Recalibration date:
Acceptance criteria: I. R. > _____ MΩ	Results
1 Secondary to ground MΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
2 Secondary to ground MΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
3 Secondary to ground MΩ	<input type="checkbox"/> Pass <input type="checkbox"/> Fail



Notes: \_\_\_\_\_

**BURDEN TEST**

	Applied amps	Measured volts	Burden	Pass	Fail
1	A	V	VA	<input type="checkbox"/>	<input type="checkbox"/>
2	A	V	VA	<input type="checkbox"/>	<input type="checkbox"/>
3	A	V	VA	<input type="checkbox"/>	<input type="checkbox"/>

Notes: \_\_\_\_\_

V<sub>max</sub>      I<sub>max</sub>      V<sub>knee</sub>      I<sub>knee</sub>

REMARKS:

INSPECTORS	CONTRACTOR	TECHNIP	OWNER
NAME			
SIGNATURE			
DATE			

<b>TechnipFMC</b>		PROJECT:									
		OWNER:									
QUALITY CONTROL FORM		<b>EFR 03L</b>	PROJ. No.:	QCF REV.	SH. 1 OF 1						
<b>SWITCHGEAR AND CONTROLGEAR VOLTAGE TRANSFORMERS</b>			CONTRACTOR:		EFR 03L N° ____						
<b>GENERAL DATA</b>											
Location / area:		System / subsystem:		Date (dd/mm/yy):							
Switchgear:	Cubicle:	Tag:	Ref. drawing:								
<b>VOLTAGE TRANSFORMERS DATA</b>											
N.	Manufacturer	Model	Serial n.	Function	Primary V	Secondary V	Accuracy class	Burden (VA)			
1.											
2.											
3.											
4.											
<b>PRE-TEST CHECKS</b>											
#	Check			Ok	Not Ok	Remarks					
1.	Mounting & location as per drawings			<input type="checkbox"/>	<input type="checkbox"/>						
2.	Clearance between primary and secondary circuits			<input type="checkbox"/>	<input type="checkbox"/>						
3.	Withdrawal mechanism (where applicable)			<input type="checkbox"/>	<input type="checkbox"/>						
4.	Correctness of fuse sizes			<input type="checkbox"/>	<input type="checkbox"/>						
5.	Tightness of electrical connections			<input type="checkbox"/>	<input type="checkbox"/>						
6.	Grounding connections			<input type="checkbox"/>	<input type="checkbox"/>						
<b>VOLTAGE RATIO AND POLARITY CHECK</b>											
Tester manuf.:		Type:		Calibration date:		Recalibration date:					
N.	Location	Taps	Ratio	Voltage		Accuracy	Polarity check			Pass	Fail
				Applied	Measured	%	VDC	Primary	Secondary		
1.										<input type="checkbox"/>	<input type="checkbox"/>
2.										<input type="checkbox"/>	<input type="checkbox"/>
3.										<input type="checkbox"/>	<input type="checkbox"/>
4.										<input type="checkbox"/>	<input type="checkbox"/>
<b>INSULATION TEST (MEGGER)</b>											
Megger manuf.:		Type:		Calibration date:		Recalibration date:					
Primary (HV) to ground			Secondary (LV) to ground			Primary (HV) to secondary (LV)					
Test performed at ____ kV DC for ____ min			Test performed at ____ kV DC for ____ min			Test performed at ____ kV DC for ____ min					
Value	Pass	Fail	Value	Pass	Fail	Value	Pass	Fail	Pass	Fail	
1. MΩ	<input type="checkbox"/>	<input type="checkbox"/>	1. MΩ	<input type="checkbox"/>	<input type="checkbox"/>	1. MΩ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. MΩ	<input type="checkbox"/>	<input type="checkbox"/>	2. MΩ	<input type="checkbox"/>	<input type="checkbox"/>	2. MΩ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. MΩ	<input type="checkbox"/>	<input type="checkbox"/>	3. MΩ	<input type="checkbox"/>	<input type="checkbox"/>	3. MΩ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. MΩ	<input type="checkbox"/>	<input type="checkbox"/>	4. MΩ	<input type="checkbox"/>	<input type="checkbox"/>	4. MΩ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Acceptance criteria: I. R. > ____ MΩ			Acceptance criteria: I. R. > ____ MΩ			Acceptance criteria: I. R. > ____ MΩ					
REMARKS :											
<b>INSPECTORS</b>		<b>CONTRACTOR</b>			<b>TECHNIP</b>			<b>OWNER</b>			
NAME											
SIGNATURE											
DATE											



PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 03M

PROJ. No.:

QCF REV.

SH. 1 OF 1

**SWITCHGEAR AND CONTROLGEAR  
PROTECTIVE RELAY / PLC I/O ASSIGNMENT  
REPORT**

CONTRACTOR:

EFR 03M N° \_\_\_\_\_

**GENERAL DATA**

Location / area:	System / subsystem:	Date (dd/mm/yy):
Switchgear:	Cubicle:	Tag:
Rated voltage:	Associated breaker type:	Ref. drawing:
CT details:	VT details:	Rated feeder current:
Relay/PLC manufacturer:	Relay/PLC type:	Serial number:

**TESTING**

Binary Inputs				Binary Outputs			
BI	Assignment	Pass	Fail	BO	Assignment	Pass	Fail
01		<input type="checkbox"/>	<input type="checkbox"/>	01		<input type="checkbox"/>	<input type="checkbox"/>
02		<input type="checkbox"/>	<input type="checkbox"/>	02		<input type="checkbox"/>	<input type="checkbox"/>
03		<input type="checkbox"/>	<input type="checkbox"/>	03		<input type="checkbox"/>	<input type="checkbox"/>
04		<input type="checkbox"/>	<input type="checkbox"/>	04		<input type="checkbox"/>	<input type="checkbox"/>
05		<input type="checkbox"/>	<input type="checkbox"/>	05		<input type="checkbox"/>	<input type="checkbox"/>
06		<input type="checkbox"/>	<input type="checkbox"/>	06		<input type="checkbox"/>	<input type="checkbox"/>
07		<input type="checkbox"/>	<input type="checkbox"/>	07		<input type="checkbox"/>	<input type="checkbox"/>
08		<input type="checkbox"/>	<input type="checkbox"/>	08		<input type="checkbox"/>	<input type="checkbox"/>
09		<input type="checkbox"/>	<input type="checkbox"/>	09		<input type="checkbox"/>	<input type="checkbox"/>
10		<input type="checkbox"/>	<input type="checkbox"/>	10		<input type="checkbox"/>	<input type="checkbox"/>
11		<input type="checkbox"/>	<input type="checkbox"/>	11		<input type="checkbox"/>	<input type="checkbox"/>
12		<input type="checkbox"/>	<input type="checkbox"/>	12		<input type="checkbox"/>	<input type="checkbox"/>
13		<input type="checkbox"/>	<input type="checkbox"/>	13		<input type="checkbox"/>	<input type="checkbox"/>
14		<input type="checkbox"/>	<input type="checkbox"/>	14		<input type="checkbox"/>	<input type="checkbox"/>
15		<input type="checkbox"/>	<input type="checkbox"/>	15		<input type="checkbox"/>	<input type="checkbox"/>
16		<input type="checkbox"/>	<input type="checkbox"/>	16		<input type="checkbox"/>	<input type="checkbox"/>
17		<input type="checkbox"/>	<input type="checkbox"/>	17		<input type="checkbox"/>	<input type="checkbox"/>
18		<input type="checkbox"/>	<input type="checkbox"/>	18		<input type="checkbox"/>	<input type="checkbox"/>
19		<input type="checkbox"/>	<input type="checkbox"/>	19		<input type="checkbox"/>	<input type="checkbox"/>
20		<input type="checkbox"/>	<input type="checkbox"/>	20		<input type="checkbox"/>	<input type="checkbox"/>
21		<input type="checkbox"/>	<input type="checkbox"/>	21		<input type="checkbox"/>	<input type="checkbox"/>
22		<input type="checkbox"/>	<input type="checkbox"/>	22		<input type="checkbox"/>	<input type="checkbox"/>
23		<input type="checkbox"/>	<input type="checkbox"/>	23		<input type="checkbox"/>	<input type="checkbox"/>
24		<input type="checkbox"/>	<input type="checkbox"/>	24		<input type="checkbox"/>	<input type="checkbox"/>
25		<input type="checkbox"/>	<input type="checkbox"/>	25		<input type="checkbox"/>	<input type="checkbox"/>
26		<input type="checkbox"/>	<input type="checkbox"/>	26		<input type="checkbox"/>	<input type="checkbox"/>
27		<input type="checkbox"/>	<input type="checkbox"/>	27		<input type="checkbox"/>	<input type="checkbox"/>
28		<input type="checkbox"/>	<input type="checkbox"/>	28		<input type="checkbox"/>	<input type="checkbox"/>
29		<input type="checkbox"/>	<input type="checkbox"/>	29		<input type="checkbox"/>	<input type="checkbox"/>
30		<input type="checkbox"/>	<input type="checkbox"/>	30		<input type="checkbox"/>	<input type="checkbox"/>
31		<input type="checkbox"/>	<input type="checkbox"/>	31		<input type="checkbox"/>	<input type="checkbox"/>
32		<input type="checkbox"/>	<input type="checkbox"/>	32		<input type="checkbox"/>	<input type="checkbox"/>

REMARKS :

INSPECTORS	CONTRACTOR	TECHNIP	OWNER
NAME			
SIGNATURE			
DATE			



PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 03N

PROJ. No.:

QCF REV.

SH. 1 OF 1

**SWITCHGEAR AND CONTROLGEAR  
PROTECTIVE RELAY TESTING REPORT**

CONTRACTOR:

EFR 03N N° \_\_\_\_\_

**GENERAL DATA**

Location / area:	System / subsystem:	Date (dd/mm/yy):
Switchgear:	Cubicle:	Tag:
Rated voltage:	Associated breaker type:	Rated feeder current:
CT details:	VT details:	
Relay manufacturer:	Relay type:	Serial number:

**SETTINGS AND TESTING**Injected current  

N.	ANSI 37.2 code	On	Off	Primary value	Pickup	Time delay	Curve	Additional settings	Pick points				Pass	Fail
									1	Res.	2	Res.		
1.														
2.														
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														
11.														
12.														
13.														
14.														
15.														
16.														
17.														
18.														
19.														
20.														

## Sample filling

N.	ANSI 37.2 code	On	Off	Primary value	Pickup	Time delay	Curve	Additional settings	Pick points				Pass	Fail
									1	Trip	2	Trip		
1.	67P	X		250 A	1.2 A	0.1 s	INV	Angle = 75°	1.4 A	0.2 s	1.8 A	80 ms	X	

Acceptable  Yes  No

Note: Relay setting curves shall be attached to this form for comparison between graphic and actual (measured) values.

REMARKS :

INSPECTORS	CONTRACTOR	TECHNIP	OWNER
NAME			
SIGNATURE			
DATE			

<b>TechnipFMC</b>		PROJECT:									
		OWNER:									
QUALITY CONTROL FORM		<b>EFR 030</b>	PROJ. No.:	QCF REV.	SH. 1 OF 1						
<b>SWITCHGEAR AND CONTROLGEAR METERS AND TRANSDUCERS TESTING REPORT</b>			CONTRACTOR:		EFR 030 N° _____						
<b>GENERAL DATA</b>											
Location / area:		System / subsystem:		Date (dd/mm/yy):							
Switchgear:	Cubicle:	Tag:	Ref. drawing:								
<b>PRE-TEST CHECKS</b>											
#	Check	Ok	Not Ok	Remarks							
1.	Mounting & location as per drawings	<input type="checkbox"/>	<input type="checkbox"/>								
2.	Check of correct settings for CT and VT inputs	<input type="checkbox"/>	<input type="checkbox"/>								
3.	Glass and cover gaskets clean and undamaged	<input type="checkbox"/>	<input type="checkbox"/>								
4.	Freedom of movement (analogue meters only)	<input type="checkbox"/>	<input type="checkbox"/>								
5.	Tightness of electrical connections	<input type="checkbox"/>	<input type="checkbox"/>								
<b>TEST</b>											
Equipment type:		<input type="checkbox"/> Meter	<input type="checkbox"/> Transducer	Power supply:	Tag:						
Manufacturer:		Model:		Serial No.:	Accuracy class(es):						
Type:	<input type="checkbox"/> V	<input type="checkbox"/> A	<input type="checkbox"/> kW	<input type="checkbox"/> kVAr	<input type="checkbox"/> Hz	<input type="checkbox"/> cos φ	<input type="checkbox"/> _____	<input type="checkbox"/> Multifun.			
CT primary current	A	CT secondary current	A	VT primary voltage	V	VT secondary voltage	V				
Output (transducers only):	<input type="checkbox"/> 4-20 mA		<input type="checkbox"/> 0-10 V		<input type="checkbox"/> _____						
Tester manuf.:		Type:	Calibration date:	Recalibration date:							
Qty (V, P...)	Unit (A, W...)	Range		Input quantities				Output		Result	
		Min	Max	Volts	Amps	Phase	_____	Calculated	Observed	Pass	Fai
										<input type="checkbox"/>	<input type="checkbox"/>
										<input type="checkbox"/>	<input type="checkbox"/>
										<input type="checkbox"/>	<input type="checkbox"/>
										<input type="checkbox"/>	<input type="checkbox"/>
										<input type="checkbox"/>	<input type="checkbox"/>
										<input type="checkbox"/>	<input type="checkbox"/>
										<input type="checkbox"/>	<input type="checkbox"/>
REMARKS :											
<b>INSPECTORS</b>			<b>CONTRACTOR</b>			<b>TECHNIP</b>			<b>OWNER</b>		
NAME											
SIGNATURE											
DATE											

 		PROJECT:							
		OWNER:							
QUALITY CONTROL FORM <b>EFR 03P</b>		PROJ. No.:	QCF REV.	SH. 1 OF 1					
<b>SWITCHGEAR AND CONTROLGEAR CAPACITORS AND POWER FACTOR CONTROLLERS TEST</b>		CONTRACTOR:		EFR 03P N° ____					
<b>GENERAL DATA</b>									
Location / area:		System / subsystem:		Date (dd/mm/yy):					
Manufacturer:		Type:		Serial no.:					
Rated voltage:		Rated kVAr:		Rated SC kA:					
Number of steps:		Tag number:		Ref. drawings:					
<b>INSULATION TEST</b>									
Megger manufacturer:		Type:	Calibration date:	Recalibration date:					
Test kV	Voltage <input type="checkbox"/> AC <input type="checkbox"/> DC	Phase L1 to Gnd MΩ	Phase L2 to Gnd MΩ	Phase L3 to Gnd MΩ					
<b>CAPACITOR TEST</b>									
Tester manuf.:		Type:	Calibration date:	Recalibration date:					
Combination		Capacitance			Discharge resistor resistance				
Prog. step	Other	kVAr	Phase L1	Phase L2	Phase L3	Phase L1	Phase L2	Phase L3	
1			mF	mF	mF	Ω	Ω	Ω	
2			mF	mF	mF	Ω	Ω	Ω	
3			mF	mF	mF	Ω	Ω	Ω	
1-2			mF	mF	mF	Ω	Ω	Ω	
2-3			mF	mF	mF	Ω	Ω	Ω	
1-3			mF	mF	mF	Ω	Ω	Ω	
1-2-3			mF	mF	mF	Ω	Ω	Ω	
Test results acceptable:					<input type="checkbox"/> Yes <input type="checkbox"/> No				
<b>POWER FACTOR CONTROLLER FUNCTIONAL TEST</b>									
Tester manuf.:		Type:	Calibration date:	Recalibration date:					
Power factor set:		Switching time delay: s	Phase-phase voltage: V	Current injected: A					
Lock time at each change of switching direction up/down: s			Controller in "auto" position <input type="checkbox"/> Yes <input type="checkbox"/> No						
<b>Lag</b>					<b>Lead</b>				
#	cos φ (lag)	Time	Output relays		#	cos φ (lead)	Time	Output relays	
			On	Off				On	Off
01		s	<input type="checkbox"/>	<input type="checkbox"/>	01		s	<input type="checkbox"/>	<input type="checkbox"/>
02		s	<input type="checkbox"/>	<input type="checkbox"/>	02		s	<input type="checkbox"/>	<input type="checkbox"/>
03		s	<input type="checkbox"/>	<input type="checkbox"/>	03		s	<input type="checkbox"/>	<input type="checkbox"/>
04		s	<input type="checkbox"/>	<input type="checkbox"/>	04		s	<input type="checkbox"/>	<input type="checkbox"/>
05		s	<input type="checkbox"/>	<input type="checkbox"/>	05		s	<input type="checkbox"/>	<input type="checkbox"/>
06		s	<input type="checkbox"/>	<input type="checkbox"/>	06		s	<input type="checkbox"/>	<input type="checkbox"/>
07		s	<input type="checkbox"/>	<input type="checkbox"/>	07		s	<input type="checkbox"/>	<input type="checkbox"/>
08		s	<input type="checkbox"/>	<input type="checkbox"/>	08		s	<input type="checkbox"/>	<input type="checkbox"/>
09		s	<input type="checkbox"/>	<input type="checkbox"/>	09		s	<input type="checkbox"/>	<input type="checkbox"/>
10		s	<input type="checkbox"/>	<input type="checkbox"/>	10		s	<input type="checkbox"/>	<input type="checkbox"/>
11		s	<input type="checkbox"/>	<input type="checkbox"/>	11		s	<input type="checkbox"/>	<input type="checkbox"/>
12		s	<input type="checkbox"/>	<input type="checkbox"/>	12		s	<input type="checkbox"/>	<input type="checkbox"/>
Manual operation check: <input type="checkbox"/> Pass <input type="checkbox"/> Fail					Test results acceptable: <input type="checkbox"/> Yes <input type="checkbox"/> No				
REMARKS :									
<b>INSPECTORS</b>		<b>CONTRACTOR</b>			<b>TECHNIP</b>		<b>OWNER</b>		
NAME									
SIGNATURE									
DATE									

<b>TechnipFMC</b> <b>IndianOil</b>		PROJECT:													
		OWNER:													
QUALITY CONTROL FORM		<b>EFR 03Q</b>		PROJ. No.:	QCF REV.	SH. 1 OF 1									
<b>SWITCHGEAR AND CONTROLGEAR NEUTRAL GROUNDING RESISTOR AND E.F. MONITORING SYSTEM</b>				CONTRACTOR:		EFR 03Q N° ____									
<b>GENERAL DATA</b>															
Location / area:		System / subsystem:			Date (dd/mm/yy):										
Manufacturer:		Type:			Serial no.:										
Rated voltage:		Rated resistance:			Rated time:										
Tag number(s):				Ref. drawings:											
<b>RESISTOR RESISTANCE AND INSULATION TEST</b>															
Tester manufacturer:		Type:		Calibration date:		Recalibration date:									
Megger manufacturer:		Type:		Calibration date:		Recalibration date:									
<b>Resistance</b>				<b>Insulation resistance</b>											
Rated	Ω	Measured	Ω	Test voltage: ____ kV DC	Results:		MΩ								
<b>EARTH FAULT MONITORING DEVICE INSULATION AND FUNCTIONAL TEST</b>															
Tester manufacturer:		Type:		Calibration date:		Recalibration date:									
Megger manufacturer:		Type:		Calibration date:		Recalibration date:									
<b>Insulation resistance</b>				Test voltage: ____ kV DC		Results: MΩ									
N	Alarm	1 <sup>st</sup> set of values					2 <sup>nd</sup> set of values					Remote alarm signalization		Results	
		Value	Time delay	Filter	Multip.	Trip	Value	Time delay	Filter	Multip.	Trip	Ok	Not ok	Pass	Fail
1															
2															
3															
4															
5															
6															
7															
8															
Sample filling															
N.	Alarm	1 <sup>st</sup> set of values					2 <sup>nd</sup> set of values					Annunciator panel alarm		Results	
		Value	Time delay	Filter	Multip.	Trip	Value	Time delay	Filter	Multip.	Trip	Ok	Not ok	Pass	Fail
1	NER fault	50 V	-	OFF	-	√	50 V	-	OFF	-	√		√		
2	Gnd fault	1.0 A	0.1 s	OFF	X 1	√	3.0 A	0.1 s	OFF	X 1	√		√		
Acceptable <input type="checkbox"/> Yes <input type="checkbox"/> No															
REMARKS :															
<b>INSPECTORS</b>		<b>CONTRACTOR</b>			<b>TECHNIP</b>			<b>OWNER</b>							
NAME															
SIGNATURE															
DATE															





PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 03S

PROJ. No.:

QCF REV.

SH. 1 OF 1

**SWITCHGEAR AND CONTROLGEAR  
ALARM SYSTEM**

CONTRACTOR:

EFR 03S N° \_\_\_\_

**GENERAL DATA**

Location / area:	System / subsystem:	Date (dd/mm/yy):
Panel item:	Column:	Ref. drawings:

**PANEL COMMON FUNCTIONS TESTING**

Lamp test	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N. A.	
Units reset, test and acknowledgement functions	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N. A.	
Remote common alarm	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N. A.	
Remote common unacknowledged alarm	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N. A.	Delay time _____ min
Horn alarm	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N. A.	
	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N. A.	

**INDIVIDUAL ALARM TESTING**

Input no.	Alarm		Results		Input no.	Alarm		Results		Input no.	Alarm		Results		Input no.	Alarm		Results	
	T	A	Pass	Fail		T	A	Pass	Fail		T	A	Pass	Fail		T	A	Pass	Fail
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	33	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	65	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	97	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	34	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	66	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	98	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	67	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	99	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	36	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	68	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	37	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	69	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	101	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	38	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	70	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	102	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	39	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	71	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	103	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	40	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	72	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	104	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	41	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	73	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	105	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	42	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	74	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	106	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	43	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	75	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	107	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	44	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	76	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	108	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	45	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	77	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	109	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	46	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	78	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	110	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	47	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	79	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	111	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	48	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	80	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	112	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	49	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	81	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	113	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	50	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	82	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	114	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	51	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	83	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	115	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	52	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	84	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	116	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	53	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	85	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	117	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	54	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	86	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	118	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	55	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	87	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	119	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	56	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	88	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	57	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	89	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	121	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	58	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	90	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	122	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	59	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	91	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	123	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	60	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	92	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	124	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	61	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	93	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	125	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	62	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	94	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	126	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	63	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	95	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	127	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	64	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	96	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	128	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\*Alarm" column: T checked = Alarm function Ok - A checked = Unacknowledged alarm function Ok

REMARKS :

INSPECTORS	CONTRACTOR	TECHNIP	OWNER
NAME			
SIGNATURE			
DATE			

 		PROJECT:		
		OWNER:		
QUALITY CONTROL FORM <b>EFR 04A</b>		PROJ. No.:	QCF REV.	SH. 1 OF 1
<b>BATTERIES, CHARGERS, UPS AND VFD SYSTEMS UPS SUMMARY REPORT</b>		CONTRACTOR:		<b>EFR 04A N° _____</b>
<b>GENERAL DATA</b>				
Location / area:		System / subsystem:		Date (dd/mm/yy):
Item:	Manufacturer:	Type:	Serial no.:	
Rated kVA:	Input voltage: V Φ	Output voltage: V Φ	Frequency: Hz	
Redundant system: <input type="checkbox"/> Yes <input type="checkbox"/> No		Ref. drawings:		
INSPECTIONS (Ref. to QCP 1620.01)		N.A.	ACC.	REPORT / REFERENCE
				INSPECTOR SIGNATURE & DATE
				CONTRACTOR    TECHNIP    OWNER
<b>A - Mechanical installation</b>				
A1	Compliance of equipment rating and nameplate with documentation	<input type="checkbox"/>	<input type="checkbox"/>	
A2	UPS panels assembled correctly, aligned and leveled	<input type="checkbox"/>	<input type="checkbox"/>	
A3	UPS panels anchorage, grounding and nameplate tagging	<input type="checkbox"/>	<input type="checkbox"/>	
A4	UPS panels without mechanical damages and missing hardware	<input type="checkbox"/>	<input type="checkbox"/>	
A5	Required area and equipment clearances	<input type="checkbox"/>	<input type="checkbox"/>	
A6	Fuses and breakers ratings verified	<input type="checkbox"/>	<input type="checkbox"/>	
A7	Cable terminal connections, color coding and tagging correct	<input type="checkbox"/>	<input type="checkbox"/>	
A8	Electrical and mechanical interlocking systems operation correctness	<input type="checkbox"/>	<input type="checkbox"/>	
A9	Filter installed correctly and ventilation openings clear	<input type="checkbox"/>	<input type="checkbox"/>	
A10	Fans operation check	<input type="checkbox"/>	<input type="checkbox"/>	
A11	Compliance of equipment rating and nameplate with documentation	<input type="checkbox"/>	<input type="checkbox"/>	
<b>B - Electrical installation</b>				
B1	Insulation test and bolted connection resistance	<input type="checkbox"/>	<input type="checkbox"/>	EFR 04B (*)
<b>C - Final inspection</b>				
C1	Cabling done neatly and cable entries properly sealed	<input type="checkbox"/>	<input type="checkbox"/>	
C2	Compartment labels as per requirement, identification & warning labels complete	<input type="checkbox"/>	<input type="checkbox"/>	
C3	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>	
(*) THE QC REPORT N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES : EFR 04B N° _____				
REMARKS:				
<b>D- Final Doc. Review</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>TECHNIP</b>	<b>OWNER</b>
	NAME			
	SIGNATURE			
	DATE			



 		PROJECT:		
		OWNER:		
QUALITY CONTROL FORM <b>EFR 04C</b>		PROJ. No.:	QCF REV.	SH. 1 OF 1
<b>BATTERIES, CHARGERS, UPS AND VFD SYSTEMS DC SYSTEM SUMMARY REPORT</b>		CONTRACTOR:		<b>EFR 04C N°</b> _____
<b>GENERAL DATA</b>				
Location / area:		System / subsystem:		Date (dd/mm/yy):
Item:	Manufacturer:	Type:	Serial no.:	
Rated kW:	Input voltage: V Φ	Output voltage: VDC	Ref. drawings.:	
Redundant system: <input type="checkbox"/> Yes <input type="checkbox"/> No		Grounding: <input type="checkbox"/> Isolated <input type="checkbox"/> Negative grounded <input type="checkbox"/> Other _____		
INSPECTIONS (Ref. to QCP 1620.01)		N.A.	ACC.	REPORT / REFERENCE
		INSPECTOR SIGNATURE & DATE		
		CONTRACTOR      TECHNIP      OWNER		
<b>A - Mechanical installation</b>				
A1.	Compliance of equipment rating and nameplate with documentation	<input type="checkbox"/>	<input type="checkbox"/>	
A2.	DC System assembled correctly, aligned and levelled	<input type="checkbox"/>	<input type="checkbox"/>	
A3.	DC System anchorage, grounding and nameplate tagging	<input type="checkbox"/>	<input type="checkbox"/>	
A4.	DC System without mechanical damages and missing hardware	<input type="checkbox"/>	<input type="checkbox"/>	
A5.	Required area and equipment clearances	<input type="checkbox"/>	<input type="checkbox"/>	
A6.	Fuses and breakers ratings verified	<input type="checkbox"/>	<input type="checkbox"/>	
A7.	Cable terminal connections, color coding and tagging correct	<input type="checkbox"/>	<input type="checkbox"/>	
A8.	Electrical and mechanical interlocking systems operation correctness	<input type="checkbox"/>	<input type="checkbox"/>	
A9.	Filter installed correctly and ventilation openings clear	<input type="checkbox"/>	<input type="checkbox"/>	
A10.	Fans operation check	<input type="checkbox"/>	<input type="checkbox"/>	
<b>B - Electrical installation</b>				
B1.	Insulation test and bolted connection resistance	<input type="checkbox"/>	<input type="checkbox"/>	EFR 04D (*)
<b>C - Testing</b>				
C1.	Functional test, distribution board	<input type="checkbox"/>	<input type="checkbox"/>	EFR 04E (*)
<b>D - Final inspection</b>				
D1.	Cabling done neatly and cable entries properly sealed	<input type="checkbox"/>	<input type="checkbox"/>	
D2.	Compartment labels as per requirement, identification & warning labels complete	<input type="checkbox"/>	<input type="checkbox"/>	
D3.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>	
REMARKS :				
(*) THE QC REPORTS N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES :				
EFR 04D N° _____ EFR 04E N° _____				
<b>E- Final Doc. Review</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>TECHNIP</b>	<b>OWNER</b>
	NAME			
	SIGNATURE			
	DATE			





PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 04E

PROJ. No.:

QCF REV.

SH. 1 OF 1

**BATTERIES, CHARGERS, UPS AND VFD SYSTEMS  
DC SYSTEM DISTRIBUTION BOARD FUNCTIONAL  
TEST**

CONTRACTOR:

EFR 04E N° \_\_\_\_

**GENERAL DATA**

Location / area:		System / subsystem:		Date (dd/mm/yy):	
Item:	Manufacturer:	Type:	Serial no.:		
Rated kW:	Input voltage: V $\Phi$	Output voltage: VDC	Ref. drawings.:		
Redundant system:	<input type="checkbox"/> Yes <input type="checkbox"/> No		Grounding: <input type="checkbox"/> Isolated <input type="checkbox"/> Negative grounded <input type="checkbox"/> Other _____		

**TESTING**

Multimeter manuf:	Type:	Calibration date:	Recalibration date:
-------------------	-------	-------------------	---------------------

**MAIN BREAKERS OPERATION**

#	Tag	Open		Close		Continuity		Aux. contacts			Alarm		
		Pass	Fail	Pass	Fail	Pass	Fail	P	F	NA	P	F	NA
		<input type="checkbox"/>											
		<input type="checkbox"/>											
		<input type="checkbox"/>											
		<input type="checkbox"/>											

**OUTGOING DC BREAKERS OPERATION**

#	Circuit	Open		Close		Continuity		Aux. contacts			Alarm		
		Pass	Fail	Pass	Fail	Pass	Fail	P	F	NA	P	F	NA
1.		<input type="checkbox"/>											
2.		<input type="checkbox"/>											
3.		<input type="checkbox"/>											
4.		<input type="checkbox"/>											
5.		<input type="checkbox"/>											
6.		<input type="checkbox"/>											
7.		<input type="checkbox"/>											
8.		<input type="checkbox"/>											
9.		<input type="checkbox"/>											
10.		<input type="checkbox"/>											
11.		<input type="checkbox"/>											
12.		<input type="checkbox"/>											
13.		<input type="checkbox"/>											
14.		<input type="checkbox"/>											
15.		<input type="checkbox"/>											
16.		<input type="checkbox"/>											
17.		<input type="checkbox"/>											
18.		<input type="checkbox"/>											
19.		<input type="checkbox"/>											
20.		<input type="checkbox"/>											
21.		<input type="checkbox"/>											
22.		<input type="checkbox"/>											
23.		<input type="checkbox"/>											
24.		<input type="checkbox"/>											
25.		<input type="checkbox"/>											
26.		<input type="checkbox"/>											
27.		<input type="checkbox"/>											
28.		<input type="checkbox"/>											
29.		<input type="checkbox"/>											
30.		<input type="checkbox"/>											

REMARKS :

INSPECTORS	CONTRACTOR	TECHNIP	OWNER
NAME			
SIGNATURE			
DATE			

 		PROJECT:							
		OWNER:							
QUALITY CONTROL FORM		<b>EFR 04F</b>	PROJ. No.:	QCF REV.	SH. 1 OF 1				
<b>BATTERIES, CHARGERS, UPS AND VFD SYSTEMS BATTERIES SUMMARY REPORT</b>			CONTRACTOR:		<b>EFR 04F N° _____</b>				
<b>GENERAL DATA</b>									
Tag N° :									
Location / area:		System / subsystem:		Date (dd/mm/yy):					
Battery type: <input type="checkbox"/> Lead-acid wet cell type <input type="checkbox"/> Lead-acid valve regulated <input type="checkbox"/> Nickel Cadmium									
Battery bank item:		Number of elements:		Ref. drawings:					
Battery manufacturer:		Battery type:		Capacity / Hours:					
INSPECTIONS (Ref. to QCP 1620.01)			N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE			
						CONTRACTOR	TECHNIP	OWNER	
<b>A – Rack and batteries installation</b>									
A1	Compliance of equipment rating and nameplate with documentation		<input type="checkbox"/>	<input type="checkbox"/>					
A2	Battery rack assembled correctly and aligned		<input type="checkbox"/>	<input type="checkbox"/>					
A3	Battery rack anchorage, grounding and nameplate tagging		<input type="checkbox"/>	<input type="checkbox"/>					
A4	Battery rack without evidence of damage, corrosion or coating defects		<input type="checkbox"/>	<input type="checkbox"/>					
A5	Batteries without mechanical damages		<input type="checkbox"/>	<input type="checkbox"/>					
A6	Batteries secured and cleaned		<input type="checkbox"/>	<input type="checkbox"/>					
A7	Batteries positioning, orientation and numbering correct		<input type="checkbox"/>	<input type="checkbox"/>					
A8	Cable terminal connections, color coding and tagging correct		<input type="checkbox"/>	<input type="checkbox"/>					
<b>B - Battery connection and filling</b>									
B1	Corroded / oxidized intercell or terminal connections cleaned		<input type="checkbox"/>	<input type="checkbox"/>					
B2	Corrosion inhibiting grease applied on intercell and terminal connections		<input type="checkbox"/>	<input type="checkbox"/>					
B3	Electrolyte correctly mixed and filled up to the required level (Wet cells only)		<input type="checkbox"/>	<input type="checkbox"/>					
B4	Check of excessive cover/jar distortion (Valve regulated cells only)		<input type="checkbox"/>	<input type="checkbox"/>					
B5	Absence of cracks and leakages		<input type="checkbox"/>	<input type="checkbox"/>					
B6	Battery connection		<input type="checkbox"/>	<input type="checkbox"/>	EFR 04G(*)				
B7	Polarity interconnection correct		<input type="checkbox"/>	<input type="checkbox"/>					
B8	Completeness of accessories (intercell connection caps, etc.)		<input type="checkbox"/>	<input type="checkbox"/>					
<b>C - Final inspection</b>									
C1	Assembly and installation complete		<input type="checkbox"/>	<input type="checkbox"/>					
C2	As-built marked up copy updated and available		<input type="checkbox"/>	<input type="checkbox"/>					
REMARKS :									
(**) THE QC REPORT N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES: EFR 04G N° _____									
<b>D- Final Doc. Review</b>	<b>INSPECTORS</b>		<b>CONTRACTOR</b>		<b>TECHNIP</b>		<b>OWNER</b>		
	NAME								
	SIGNATURE								
	DATE								



PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 04G

PROJ. No.:

QCF REV.

SH. 1 OF 1

**BATTERIES, CHARGERS, UPS AND VFD SYSTEMS  
BATTERIES CONNECTION**

CONTRACTOR:

EFR 04G N° \_\_\_\_

**GENERAL DATA**

Tag N° :

Location / area:

System / subsystem:

Date (dd/mm/yy):

Battery type:  Lead-acid wet cell type  Lead-acid valve regulated  Nickel Cadmium

Battery bank item:

Number of elements:

Ref. drawings:

Battery manufacturer:

Battery type:

Capacity / Hours:

**INTERCELL TORQUING**

Torque wrench manufacturer:

Type:

Calibration date:

Recalibration date:

Resistance meas. manufacturer:

Type:

Calibration date:

Recalibration date:

Intercell conn. No.	Resistance value ( $\mu\Omega$ )	Intercell conn. No.	Resistance value ( $\mu\Omega$ )	Intercell conn. No.	Resistance value ( $\mu\Omega$ )	Intercell conn. No.	Resistance value ( $\mu\Omega$ )
1-2		30-31		59-60		88-89	
2-3		31-32		60-61		89-90	
3-4		32-33		61-62		90-91	
4-5		33-34		62-63		91-92	
5-6		34-35		63-64		92-93	
6-7		35-36		64-65		93-94	
7-8		36-37		65-66		94-95	
8-9		37-38		66-67		95-96	
9-10		38-39		67-68		96-97	
10-11		39-40		68-69		97-98	
11-12		40-41		69-70		98-99	
12-13		41-42		70-71		99-100	
13-14		42-43		71-72		100-101	
14-15		43-44		72-73		101-102	
15-16		44-45		73-74		102-103	
16-17		45-46		74-75		103-104	
17-18		46-47		75-76		104-105	
18-19		47-48		76-77		105-106	
19-20		48-49		77-78		106-107	
20-21		49-50		78-79		107-108	
21-22		50-51		79-80		108-109	
22-23		51-52		80-81		109-110	
23-24		52-53		81-82		110-111	
24-25		53-54		82-83		111-112	
25-26		54-55		83-84		112-113	
26-27		55-56		84-85		113-114	
27-28		56-57		85-86		114-115	
28-29		57-58		86-87		115-116	
29-30		58-59		87-88			

REMARKS :

**INSPECTORS****CONTRACTOR****TECHNIP****OWNER**

NAME

SIGNATURE

DATE

 		PROJECT:						
		OWNER:						
QUALITY CONTROL FORM <b>EFR 04H</b>		PROJ. No.:	QCF REV.	SH. 1 OF 1				
<b>BATTERIES, CHARGERS, UPS AND VFD SYSTEMS VARIABLE FREQUENCY DRIVE SUMMARY REPORT</b>		CONTRACTOR:		<b>EFR 04H N°</b> _____				
<b>GENERAL DATA</b>								
Tag N° :								
Location / area:		System / subsystem:		Date (dd/mm/yy):				
Manufacturer:		Type:		Serial no.:				
Rated kW:		Input voltage: V $\Phi$		Torque <input type="checkbox"/> Constant <input type="checkbox"/> Variable				
Bypass switch: <input type="checkbox"/> Yes <input type="checkbox"/> No		Ref. drawings:						
INSPECTIONS (Ref. to QCP 1620.01)		N.A.	ACC.	REPORT / REFERENCE				
				INSPECTOR SIGNATURE & DATE				
				CONTRACTOR	TECHNIP	OWNER		
<b>A - Mechanical installation</b>								
A1.	Compliance of equipment rating and nameplate with documentation	<input type="checkbox"/>	<input type="checkbox"/>					
A2.	VFD assembled correctly, aligned and levelled	<input type="checkbox"/>	<input type="checkbox"/>					
A3.	VFD anchorage, grounding and nameplate tag	<input type="checkbox"/>	<input type="checkbox"/>					
A4.	VFD without mech. damage & missing hardware	<input type="checkbox"/>	<input type="checkbox"/>					
A5.	Required area and equipment clearances	<input type="checkbox"/>	<input type="checkbox"/>					
A6.	Fuses and breakers ratings verified	<input type="checkbox"/>	<input type="checkbox"/>					
A7.	Cable terminal connections, color coding and tagging correct	<input type="checkbox"/>	<input type="checkbox"/>					
A8.	Electrical and mechanical interlocking systems operation correctness	<input type="checkbox"/>	<input type="checkbox"/>					
A9.	Filter installed correctly and ventilation openings clear	<input type="checkbox"/>	<input type="checkbox"/>					
A10.	Fans operation check	<input type="checkbox"/>	<input type="checkbox"/>					
<b>B - Electrical installation</b>								
B1.	Insulation test and bolted connection resistance	<input type="checkbox"/>	<input type="checkbox"/>					
<b>INSULATION TEST (*)</b>								
Megger manuf./type:		Test voltage: V		Calibration date:		Recalibration date:		
		Phase L1 to ground		Phase L2 to ground		Phase L3 to ground		
Input		M $\Omega$		M $\Omega$		M $\Omega$		
Output		M $\Omega$		M $\Omega$		M $\Omega$		
<b>BOLTS TIGHTENING (*)</b>								
Torque wrench manufacturer:		Type:		Calibration date:		Recalibration date:		
Bolt size (M) / Tightening Torque (Nm)		M / Nm	M / Nm	M / Nm	M / Nm	M / Nm		
<b>BOLTED CONNECTION RESISTANCE (*)</b>								
LR ohmmeter manuf./type:		Test current: A		Calibration date:		Recalibration date:		
		Phase L1		Phase L2		Phase L3	Ground	
Input		$\mu\Omega$		$\mu\Omega$		$\mu\Omega$	$\mu\Omega$	
Output		$\mu\Omega$		$\mu\Omega$		$\mu\Omega$	$\mu\Omega$	
<b>C - Final inspection</b>								
C1.	Assembly and installation complete	<input type="checkbox"/>	<input type="checkbox"/>					
C2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>					
(*) The relevant data shall be indicated on remarks rows								
REMARKS :								
D- Final Doc. Review	<b>INSPECTORS</b>		<b>CONTRACTOR</b>		<b>TECHNIP</b>		<b>OWNER</b>	
	NAME							
	SIGNATURE							
	DATE							

 		PROJECT:					
		OWNER:					
QUALITY CONTROL FORM <b>EFR 04I</b>		PROJ. No.:	QCF REV.	SH. 1 OF 1			
<b>ELECTRICAL CONTROL SYSTEM INSTALLATION SUMMARY REPORT</b>		CONTRACTOR:		EFR 04I N° _____			
<b>GENERAL DATA</b>							
Location / area:		System / subsystem:		Date (dd/mm/yy):			
Manufacturer:		Type:		Serial no.:			
<input type="checkbox"/> Lighting distribution panel	<input type="checkbox"/> Power distribution panel	<input type="checkbox"/> MOV distribution panel	<input type="checkbox"/> Diesel genset control panel				
<input type="checkbox"/> Synchr. excitation panel	<input type="checkbox"/> E/I marshalling cabinet	<input type="checkbox"/> Substation alarm panel	<input type="checkbox"/> Protective relay rack				
<input type="checkbox"/> Metering equipment panel	<input type="checkbox"/> Substation control panel	<input type="checkbox"/> Substation command panel	<input type="checkbox"/> Capacitor bank				
<input type="checkbox"/> Neutral grounding resistor	<input type="checkbox"/> NGR panel	<input type="checkbox"/> SCADA system	<input type="checkbox"/> Other _____				
Rated voltage:		Rated current:		Rated SC kA:			
Tag number:			Ref. drawings:				
INSPECTIONS (Ref. to QCP 1620.01)		N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
					CONTRACTOR	TECHNIP	OWNER
<b>A – Installation</b>							
A1	Compliance of equipment rating and nameplate with documentation	<input type="checkbox"/>	<input type="checkbox"/>				
A2	Panel assembled correctly, aligned and levelled	<input type="checkbox"/>	<input type="checkbox"/>				
A3	Panel anchorage, grounding and nameplate tagging	<input type="checkbox"/>	<input type="checkbox"/>				
A4	Panel without mechanical damages and missing hardware	<input type="checkbox"/>	<input type="checkbox"/>				
A5	Required area and equipment clearances	<input type="checkbox"/>	<input type="checkbox"/>				
A6	Fuses and breakers ratings verified	<input type="checkbox"/>	<input type="checkbox"/>				
A7	Cable terminal connections, color coding and tagging correct	<input type="checkbox"/>	<input type="checkbox"/>				
A8	Filter installed correctly and ventilation openings clear	<input type="checkbox"/>	<input type="checkbox"/>				
A9	Instrument, relays and pilot lights verified as per requirements	<input type="checkbox"/>	<input type="checkbox"/>				
A10	Panel switches properly assembled and connected	<input type="checkbox"/>	<input type="checkbox"/>				
<b>B - Testing</b>							
B1	SCADA System Test	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03R(*)			
<b>C - Final inspection</b>							
C1	Cabling done neatly and cable entries properly sealed	<input type="checkbox"/>	<input type="checkbox"/>				
C2	Compartment labels as per requirement, identification & warning labels complete	<input type="checkbox"/>	<input type="checkbox"/>				
C3	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>				
(*) THE QC REPORT N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES : EFR 03R N° _____							
REMARKS:							
<b>D- Final Doc. Review</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>TECHNIP</b>	<b>OWNER</b>			
	NAME						
	SIGNATURE						
	DATE						

 		PROJECT:			
		OWNER:			
QUALITY CONTROL FORM		<b>EFR 04J</b>	PROJ. No.:	QCF REV.	SH. 1 OF 1
<b>LOAD BANK INSTALLATION SUMMARY REPORT</b>			CONTRACTOR:		<b>EFR 04J N° _____</b>
<b>GENERAL DATA</b>					
Location / area:		System / subsystem:		Date (dd/mm/yy):	
Manufacturer:		Type:		Serial no.:	
<input type="checkbox"/> Lighting distribution panel	<input type="checkbox"/> Power distribution panel	<input type="checkbox"/> MOV distribution panel	<input type="checkbox"/> Diesel genset control panel		
<input type="checkbox"/> Synchr. excitation panel	<input type="checkbox"/> E/I marshalling cabinet	<input type="checkbox"/> Substation alarm panel	<input type="checkbox"/> Protective relay rack		
<input type="checkbox"/> Metering equipment panel	<input type="checkbox"/> Substation control panel	<input type="checkbox"/> Substation command panel	<input type="checkbox"/> Capacitor bank		
<input type="checkbox"/> Neutral grounding resistor	<input type="checkbox"/> NGR panel	<input type="checkbox"/> SCADA system	<input type="checkbox"/> Other _____		
Rated voltage:		Rated current:		Rated SC kA:	
Tag number:			Ref. drawings:		
INSPECTIONS (Ref. to QCP 1620.01)			N.A.	ACC	REPORT / REFERENCE
			INSPECTOR SIGNATURE & DATE		
			CONTRACTOR		
			TECHNIP		
			OWNER		
<b>A – Installation</b>					
A1.	Compliance of equipment rating and nameplate with documentation	<input type="checkbox"/>	<input type="checkbox"/>		
A2.	Panel / equipment assembled correctly, aligned and levelled	<input type="checkbox"/>	<input type="checkbox"/>		
A3.	Panel / equipment anchorage, grounding and nameplate tagging	<input type="checkbox"/>	<input type="checkbox"/>		
A4.	Panel / equipment without mechanical damages and missing hardware	<input type="checkbox"/>	<input type="checkbox"/>		
A5.	Required area and equipment clearances	<input type="checkbox"/>	<input type="checkbox"/>		
A6.	Cable terminal connections, color coding and tagging correct	<input type="checkbox"/>	<input type="checkbox"/>		
A7.	Electrical and mechanical interlocking systems operation correctness	<input type="checkbox"/>	<input type="checkbox"/>		
A8.	Equipment and ventilation fan correctly assembled	<input type="checkbox"/>	<input type="checkbox"/>		
A9.	Devices and pilot lights verified as per requirements	<input type="checkbox"/>	<input type="checkbox"/>		
A10.	Instruments, relays and pilot lights wiring connections terminated properly	<input type="checkbox"/>	<input type="checkbox"/>		
A11.	Nameplate check	<input type="checkbox"/>	<input type="checkbox"/>		
A12.	Connection of primary and secondary cables	<input type="checkbox"/>	<input type="checkbox"/>		
A13.	Connection of auxiliary cables	<input type="checkbox"/>	<input type="checkbox"/>		
A14.	Bolted connections resistance measurement	<input type="checkbox"/>	<input type="checkbox"/>		
A15.	Surrounding area cleared	<input type="checkbox"/>	<input type="checkbox"/>		
<b>B - Testing</b>					
B1.	Resistance of Load Bank and Continuity & Insulation Tests	<input type="checkbox"/>	<input type="checkbox"/>		
<b>C - Final inspection</b>					
C1.	Cabling done neatly and cable entries properly sealed	<input type="checkbox"/>	<input type="checkbox"/>		
C2.	Compartment labels as per requirement, identification & warning labels complete	<input type="checkbox"/>	<input type="checkbox"/>		
C3.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>		
REMARKS :					
<b>D- Final Doc. Review</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>TECHNIP</b>	<b>OWNER</b>	
	NAME				
	SIGNATURE				
	DATE				

 		PROJECT:					
		OWNER:					
QUALITY CONTROL FORM <b>EFR 04K</b>		PROJ. No.:	QCF REV.	SH. 1 OF 1			
<b>ELECTRICAL LOAD SHEDDING INSTALLATION SUMMARY REPORT</b>		CONTRACTOR:		<b>EFR 04K N°</b> _____			
<b>GENERAL DATA</b>							
Location / area:		System / subsystem:		Date (dd/mm/yy):			
Manufacturer:		Type:		Serial no.:			
<input type="checkbox"/> Lighting distribution panel	<input type="checkbox"/> Power distribution panel	<input type="checkbox"/> MOV distribution panel	<input type="checkbox"/> Diesel genset control panel				
<input type="checkbox"/> Synchr. excitation panel	<input type="checkbox"/> E/I marshalling cabinet	<input type="checkbox"/> Substation alarm panel	<input type="checkbox"/> Protective relay rack				
<input type="checkbox"/> Metering equipment panel	<input type="checkbox"/> Substation control panel	<input type="checkbox"/> Substation command panel	<input type="checkbox"/> Capacitor bank				
<input type="checkbox"/> Neutral grounding resistor	<input type="checkbox"/> NGR panel	<input type="checkbox"/> SCADA system	<input type="checkbox"/> Other _____				
Rated voltage:		Rated current:		Rated SC kA:			
Tag number:			Ref. drawings:				
INSPECTIONS (Ref. to QCP 1620.01)		N.A.	ACC	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
					CONTRACTOR	TECHNIP	OWNER
<b>A – Installation</b>							
A1.	Compliance of equipment rating and nameplate with documentation	<input type="checkbox"/>	<input type="checkbox"/>				
A2.	Panel assembled correctly, aligned and levelled	<input type="checkbox"/>	<input type="checkbox"/>				
A3.	Panel anchorage, grounding and nameplate tagging	<input type="checkbox"/>	<input type="checkbox"/>				
A4.	Panel without mechanical damages and missing hardware	<input type="checkbox"/>	<input type="checkbox"/>				
A5.	Required area and equipment clearances	<input type="checkbox"/>	<input type="checkbox"/>				
A6.	Fuses and breakers ratings verified	<input type="checkbox"/>	<input type="checkbox"/>				
A7.	Cable terminal connections, colour coding and tagging correct	<input type="checkbox"/>	<input type="checkbox"/>				
A8.	Filter installed correctly and ventilation openings clear	<input type="checkbox"/>	<input type="checkbox"/>				
A9.	Devices and pilot lights verified as per requirements	<input type="checkbox"/>	<input type="checkbox"/>				
A10.	Panel switches properly assembled and connected	<input type="checkbox"/>	<input type="checkbox"/>				
<b>B - Testing</b>							
B1.	Capacitors And Power Factor Controllers Test	<input type="checkbox"/>	<input type="checkbox"/>	EFR 03P (*)			
<b>C - Final inspection</b>							
C1.	Cabling done neatly and cable entries properly sealed	<input type="checkbox"/>	<input type="checkbox"/>				
C2.	Compartment labels as per requirement, identification & warning labels complete	<input type="checkbox"/>	<input type="checkbox"/>				
C3.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>				
(*) THE QC REPORT N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES : EFR 03P N° _____							
REMARKS:							
<b>D- Final Doc. Review</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>		<b>TECHNIP</b>		<b>OWNER</b>	
	NAME						
	SIGNATURE						
	DATE						

		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION POWER SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1630-001		<b>Rev. No.</b> 0	Page 1 of 14

**QUALITY CONTROL PLAN**  
**ELECTRICAL INSTALLATION**  
**POWER SYSTEM**

<b>TYPE OF QUALITY CONTROL REPORT</b>	<b>CERTIFICATION EXTENT</b>
EFR 05A	Cable Management Systems - Cable Trays and Ladders Installation Summary Report
EFR 05B	Cable Management Systems - Underground Concrete trench Conduits Installation Summary Report
EFR 05C	Cable Management Systems - Aboveground Conduits Installation Summary Report
EFR 05D	Cable Management Systems - Firestop Barrier Installation Summary Report
EFR 06A	Electrical Cables - Pre-Installation Cable Checks on Reel
EFR 06B	Electrical Cables - Directly Buried Cables Installation Summary Report
EFR 06C	Electrical Cables - Underground Concrete trench / Duct/ Conduit Cables Installation Summary Report
EFR 06D	Electrical Cables - Cables in Trays / Aboveground Conduit Install. Summary Report
EFR 06E	Electrical Cables - Low Voltage Power Cable Testing Report
EFR 06F	Electrical Cables - Control / Interconnection Cable Testing Report
EFR 06G	Electrical Cables - Extra LV Signal Cable Testing Report
EFR 06H	Electrical Cables - Medium / High Voltage Cable Testing Report
EFR 06I	Electrical Cables - Medium / High Voltage Cable High Potential Test
EFR 06J	Electrical Cables - Cable Connection Summary Report
EFR 06K	Electrical Cables - Fiber Optic Cable Testing Report
EFR 07A	Power System - Control Station Installation and Test Summary Report
EFR 07B	Power System - Power Junction Box Installation Summary Report
EFR 07C	Power System - Welding Outlet Installation and Test Summary Report
EFR 07D	Power System - Various Equipment Installation Summary Report
EFR 07E	Power System - Cable Joints Installation and Test Summary Report

			 <small>balamangan, iq@technipfmc.com 2019.11.19 16:49:36 +05'30'</small>	 <small>Alakappa L 2019.11.21 11:01:53 +05'30'</small>	 <small>Alakappa L 2019.11.21 11:02:04 +05'30'</small>	 <small>Moschrisopher Jesumathan 2019.11.29 14:42:43 +05'30'</small>
0	19.11.2019	ISSUED FOR IMPLEMENTATION	TB	PKP / LA	LA	JMC
<b>REV.</b>	<b>DATE</b>	<b>STATUS</b>	<b>WRITTEN BY</b>	<b>CHECKED BY</b>	<b>APPROVED BY</b>	<b>AUTHOR. BY</b>
<b>DOCUMENT REVISIONS</b>						

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		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION POWER SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1630-001		<b>Rev. No.</b> 0	Page 2 of 14

#### REFERENCE DOCUMENTS:

- 080557C-000-PP-805
  - 080557C-000-JSD-1600-003
  - DRAWINGS
- SITE COORDINATION & COMMUNICATION PROCEDURE.  
SPECIFICATIONS FOR FIELD ELECTRICAL INSTALLATION,  
TESTING, PRE-COMMISSIONING AND COMMISSIONING

#### LEGENDA

H	=	HOLD (RFI required - Work stop for inspection)
W	=	WITNESS (RFI required)
WC	=	100 % SUPERVISION AND EXAMINATION BY CONTRACTOR.
P	=	PREPARATION.
S	=	SURVEILLANCE (No RFI)
R	=	REVIEW OF REPORTS
N.A.	=	NOT APPLICABLE
A	=	AUTHORIZATION / APPROVAL
IFA	=	ISSUED FOR AUTHORIZATION/APPROVAL
INFO	=	FOR INFORMATION
!	=	WARNING (control of document revision status)

		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION POWER SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1630-001		<b>Rev. No.</b> 0	Page 3 of 14

**QUALITY CONTROL PLAN**

**ELECTRICAL INSTALLATION  
POWER SYSTEM**

**QUALITY CONTROL ACTIVITIES**

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION	ACTION	NOTES
			CONTR.	OWNER (*)	
<b>A</b>	<b>PRELIMINARY ACTIVITIES</b>				
A1	CHECK OF CONTRACTOR DRAWINGS REVISION STATUS	NA	!	!	
A2	CONTRACTOR TECHNICAL SPECIFICATION AND PROCEDURE	NA	P	R/A	
A3	CONTRACTOR'S METHOD OF STATEMENT (IF REQUIRED)	NA	P	R/A	(1)
<b>B</b>	<b>MATERIALS - BEFORE AND AFTER INSTALLATION</b>				
<b>B1</b>	<b>IDENTIFICATION AND PRESERVATION STATUS</b>	<b>NA</b>	<b>W/C</b>	<b>R</b>	
<b>C01</b>	<b>INSTALLATION OF CABLE TRAYS AND CABLE LADDERS</b>				
<b>C01-A</b>	<b>Prefabrication of supports</b>				
C01-A1	Supports prefabricated	NA	W/C	S	
<b>C01-B</b>	<b>Installation of supports</b>				
C01-B1	Supports & hangers installed properly	NA	W/C	S	
C01-B2	Installation & layout as per approved drawings	NA	W/C	S	
<b>C01-C</b>	<b>Installation of trays</b>				
C01-C1	Clamps & fixings properly installed	NA	W/C	S	
C01-C2	Expansion joints, splice plates and fittings correctly located	NA	W/C	W/R	
C01-C3	Midspan deflection acceptable	NA	W/C	W/R	
C01-C4	Clearances from other structures and components	NA	W/C	W/R	
C01-C5	Cable tray without roughness	NA	W/C	S	
<b>C01-D</b>	<b>Trays grounding</b>				
C01-D1	Grounding installed properly	NA	W/C	W/R	
<b>C01-E</b>	<b>Installation of covers</b>				
C01-E1	Horizontal and vertical cable tray covers properly fixed, fastened and spaced	NA	W/C	W/R	
<b>C01-F</b>	<b>Final inspection</b>	<b>EFR 05A</b>	<b>W/C</b>	<b>W/R</b>	
<b>C01-F1</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C01-F2</b>	<b>As-built marked up copy updated and available</b>	NA	P	A	
<b>C01-F3</b>	<b>Cold galvanizing touch-up paint applied where required</b>	NA	W/C	W/R	
<b>C01-G</b>	<b>Final documentation review</b>	<b>EFR 05A</b>	<b>R</b>	<b>R</b>	
<b>C02</b>	<b>INSTALLATION OF UNDERGROUND CONDUITS / CONCRETE TRENCH</b>				
<b>C02-A</b>	<b>Route check and supports installation</b>				
C02-A1	Trench size, location and depth	NA	W/C	W/R	
C02-A2	Correct bedding material installed	NA	W/C	W/R	
C02-A3	Supports installation	NA	W/C	R	

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S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION	ACTION	NOTES
			CONTR.	OWNER (*)	
<b>C02-B</b>	<b>Conduit preparation and bending</b>				
C02-B1	Correct type & size	NA	W/C	R	
C02-B2	Conduit bending radius	NA	W/C	W/R	
C02-B3	Internal surface smooth & free of sharp edges	NA	W/C	R	
<b>C02-C</b>	<b>Laying of conduit and stub-up</b>				
C02-C1	Stub-up location, size & fixing	NA	W/C	R	
C02-C2	Conduit installation as per approved drawings	NA	W/C	R	
C02-C3	Clearances from other buried objects	NA	W/C	W/R	
C02-C4	Bushings installation (where applicable)	NA	W/C	W/R	
C02-C5	Ends temporary sealing	NA	W/C	R	
<b>C02-D</b>	<b>Identification of conduit</b>				
C02-D1	Markers installation (where applicable)	NA	W/C	R	
<b>C02-E</b>	<b>Final inspection</b>	<b>EFR 05B</b>	<b>W/C</b>	<b>W/R</b>	
<b>C02-E1</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C02-E2</b>	<b>Sealing of spare conduits</b>	NA	W/C	W/R	
<b>C02-E3</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C02-E4</b>	<b>Cold galvanizing touch-up paint applied where required</b>	NA	W/C	W/R	
<b>C02-F</b>	<b>Final documentation review</b>	<b>EFR 05B</b>	<b>R</b>	<b>R</b>	
<b>C03</b>	<b>INSTALLATION OF ABOVEGROUND CONDUITS</b>				
<b>C03-A</b>	<b>Route check and supports installation</b>				
C03-A1	Supports installation	NA	W/C	R	
<b>C03-B</b>	<b>Conduit preparation and bending</b>				
C03-B1	Correct type & size	NA	W/C	W/R	
C03-B2	Conduit bending radius	NA	W/C	W/R	
C03-B3	Internal surface smooth & free of sharp edges	NA	W/C	W/R	
<b>C03-C</b>	<b>Laying of conduit</b>				
C03-C1	Conduit installation as per approved drawings	NA	W/C	W/R	
C03-C2	Alignment and straightness	NA	W/C	W/R	
C03-C3	Clearances from other objects	NA	W/C	W/R	
C03-C4	Bodies, fittings, unions, nipples and other components installed properly	NA	W/C	W/R	
C03-C5	Bushings installation (where applicable)	NA	W/C	W/R	
<b>C03-D</b>	<b>Grounding of conduit</b>				
C03-D1	Grounding connection (when applicable)	NA	W/C	W/R	
<b>C03-E</b>	<b>Final inspection</b>	<b>EFR 05C</b>	<b>W/C</b>	<b>W/R</b>	
<b>C03-E1</b>	<b>Final visual inspection</b>	NA	W/C	W/R	

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			CONTR.	OWNER (*)	
<b>C03-E2</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C03-E3</b>	<b>Cold galvanizing touch-up paint applied where required</b>	NA	W/C	W/R	
<b>C03-F</b>	<b>Final documentation review</b>	<b>EFR 05C</b>	<b>R</b>	<b>R</b>	
<b>C04</b>	<b>INSTALLATION OF CABLES, DIRECTLY BURIED</b>				
<b>C04-A</b>	<b>Stub-up, concrete base and trench</b>				
C04-A1	Trench size, location and depth	NA	W/C	W/R	
C04-A2	Routing according to drawings	NA	W/C	W/R	
C04-A3	Interference with other buried systems	NA	W/C	W/R	
C04-A4	Correct bedding material installed	NA	W/C	W/R	
C04-A5	Stub-up location, size and fixing	NA	W/C	W/R	
<b>C04-B</b>	<b>Handling of cable reel</b>				
C04-B1	Cable reel integrity check	NA	W/C	W/R	
C04-B2	Cable tests on reel done	NA	W/C	W/R	
C04-B3	Checking proper cable drum assignment / schedule prepare to cable pulling	<b>EFR 06A</b>	<b>W/C</b>	<b>W/R</b>	
<b>C04-C</b>	<b>Laying of cables</b>				
C04-C1	Cable tag, Source, destination and routing verified	NA	W/C	W/R	
C04-C2	Type, voltage, size and color code verified	NA	W/C	W/R	
C04-C3	Maximum pulling force verified	NA	W/C	W/R	
C04-C4	Minimum bending radius checked	NA	W/C	W/R	
C04-C5	Burial depth and separation checked	NA	W/C	W/R	
C04-C6	Grouping (ex. trefoil formation, where applicable)	NA	W/C	W/R	
C04-C7	Phase ordering for single core power cables	NA	W/C	W/R	
C04-C8	Cable pulling done properly	NA	W/C	W/R	
C04-C9	Cable ends sealed	NA	W/C	W/R	
C04-C10	No physical damages	NA	W/C	W/R	
<b>C04-D</b>	<b>Insulation and resistance test before backfilling</b>				
C04-D1	MV / HV power cables	NA	W/C	W/R	
C04-D2	LV power cables	NA	W/C	W/R	
C04-D3	LV control cables	NA	W/C	W/R	
C04-D4	ELV signal cables	NA	W/C	W/R	
<b>C04-E</b>	<b>Cable markers installation</b>				
<b>C04-F</b>	<b>Insulation and resistance test after backfilling</b>				
C04-F1	MV / HV power cables	NA	W/C	W/R	
C04-F2	LV power cables	NA	W/C	W/R	
C04-F3	LV control cables	NA	W/C	W/R	

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### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION POWER SYSTEM

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S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION	ACTION	NOTES
			CONTR.	OWNER (*)	
C04-F4	ELV signal cables	NA	W/C	W/R	
<b>C04-G</b>	<b>Cable way markers installation</b>	NA	W/C	W/R	
<b>C04-H</b>	<b>Final inspection</b>	<b>EFR 06B</b>	<b>W/C</b>	<b>W/R</b>	
<b>C04-H1</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C04-H2</b>	<b>Final Cable testing reports (HV/MV/LV/Control/ELV Signal)</b>	<b>EFR 06I, EFR 06H, EFR 06E, EFR 06F &amp; EFR 06G</b>	<b>W/C</b>	<b>W/R</b>	
<b>C04-H3</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C04-I</b>	<b>Final documentation review</b>	<b>EFR 06B</b>	<b>P</b>	<b>R</b>	
<b>C05</b>	<b>INSTALLATION OF CABLES, IN UNDERGROUND CONCRETE TRENCH / DUCT CONDUIT</b>				
<b>C05-A</b>	<b>Stub-up, concrete base and duct/conduit</b>				
C05-A1	Duct/conduit size, location and depth	NA	W/C	W/R	
C05-A2	Routing according to drawings	NA	W/C	R	
C05-A3	Interference with other buried systems	NA	W/C	W/R	
C05-A4	Correct reinforcing material installed	NA	W/C	W/R	
C05-A5	Stub-up location, size and fixing	NA	W/C	W/R	
<b>C05-B</b>	<b>Handling of cable reel</b>				
C05-B1	Cable reel integrity check	NA	W/C	W/R	
C05-B2	Cable tests on reel done	NA	W/C	W/R	
C05-B3	Checking proper cable drum assignment / schedule prepare to cable pulling	<b>EFR 06A</b>	<b>W/C</b>	<b>W/R</b>	
<b>C05-C</b>	<b>Duct/conduit cleaning</b>				
C05-C1	Internal surface cleaned	<b>EFR 06C</b>	<b>W/C</b>	<b>W/R</b>	
<b>C05-D</b>	<b>Cable pulling</b>				
C05-D1	Source, destination and routing verified	NA	W/C	W/R	
C05-D2	Type, voltage, size and color code verified	NA	W/C	W/R	
C05-D3	Maximum pulling force verified	NA	W/C	W/R	
C05-D4	Minimum bending radius checked	NA	W/C	W/R	
C05-D5	Cable section and conduit number checked	NA	W/C	W/R	
C05-D6	Cable pulling done properly	NA	W/C	W/R	
C05-D7	Cable ends sealed	NA	W/C	W/R	
C05-D8	No physical damages	NA	W/C	W/R	
<b>C05-E</b>	<b>Insulation and resistance test</b>				
C05-E1	MV / HV power cables	NA	W/C	W/R	
C05-E2	LV power cables	NA	W/C	W/R	

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S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION	ACTION	NOTES
			CONTR.	OWNER (*)	
C05-E3	LV control cables	NA	W/C	W/R	
C05-E4	ELV signal cables	NA	W/C	W/R	
<b>C05-F</b>	<b>Cable markers installation</b>				
<b>C05-G</b>	<b>Final inspection</b>	<b>EFR 06C</b>	<b>W/C</b>	<b>W/R</b>	
<b>C05-G1</b>	<b>Final Cable testing reports (HV/MV/LV/Control/ELV Signal)</b>	<b>EFR 06I, EFR 06H, EFR 06E, EFR 06F &amp; EFR 06G</b>	<b>W/C</b>	<b>W/R</b>	
<b>C05-G2</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C05-G3</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C05-H</b>	<b>Final documentation review</b>	<b>EFR 06C</b>	<b>P</b>	<b>R</b>	
<b>C06</b>	<b>INSTALLATION OF INTERCONNECTING CABLES IN CABLE TRAYS / LADDERS</b>				
<b>C06-A</b>	<b>Handling of cable reel</b>				
C06-A1	Cable reel integrity check	NA	W/C	W/R	
C06-A2	Cable tests on reel done	NA	W/C	W/R	
<b>C06-B</b>	<b>Laying of cables</b>				
C06-B1	Type, voltage and size verified	NA	W/C	W/R	
C06-B2	Color code verified	NA	W/C	W/R	
C06-B3	Source, destination and routing verified	NA	W/C	W/R	
C06-B4	Maximum pulling force verified	NA	W/C	W/R	
C06-B5	Minimum bending radius checked	NA	W/C	W/R	
C06-B6	Cable section and tray number checked	NA	W/C	W/R	
C06-B7	Cable ends sealed	NA	W/C	W/R	
C06-B8	Cable laid properly, without crossings	NA	W/C	W/R	
C06-B9	Cable spaced properly	NA	W/C	W/R	
C06-B10	Grouping (ex. trefoil formation, where applicable)	NA	W/C	W/R	
C06-B11	Phase ordering for single core power cables	NA	W/C	W/R	
C06-B12	Cable pulling done properly	NA	W/C	W/R	
C06-B13	Cable clamped properly	NA	W/C	W/R	
C06-B14	Fixing elements and fasteners installed	NA	W/C	W/R	
C06-B15	Cable ends sealed	NA	W/C	W/R	
C06-B16	No physical damages	NA	W/C	W/R	
<b>C06-C</b>	<b>Insulation and resistance test</b>				
C06-C1	MV / HV power cables	NA	W/C	W/R	
C06-C2	LV power cables	NA	W/C	W/R	

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			CONTR.	OWNER (*)	
C06-C3	LV control cables	NA	W/C	W/R	
C06-C4	ELV signal cables	NA	W/C	W/R	
<b>C06-D</b>	<b>Cable markers installation</b>				
<b>C06-E</b>	<b>Final inspection</b>	<b>EFR 06D</b>	<b>W/C</b>	<b>W/R</b>	
<b>C06-E1</b>	<b>Final Cable testing reports (HV/MV/LV/Control/ELV Signal)</b>	<b>EFR 06I, EFR 06H, EFR 06E, EFR 06F &amp; EFR 06G</b>	<b>W/C</b>	<b>W/R</b>	
<b>C06-E2</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C06-E3</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C06-F</b>	<b>Final documentation review</b>	<b>EFR 06D</b>	<b>P</b>	<b>R</b>	
<b>C07</b>	<b>CONNECTION OF INTERCONNECTING CABLES</b>				
<b>C07-A</b>	<b>Glanding, connection and testing</b>				
C07-A1	Cable found undamaged	NA	W/C	W/R	
C07-A2	Splice according to manuf. instructions	NA	W/C	W/R	
C07-A3	Cable gland size correct	NA	W/C	W/R	
C07-A4	Cable gland execution verified	NA	W/C	W/R	
C07-A5	Jacket, armour and sheath tightened	NA	W/C	W/R	
C07-A6	Proper lug size and crimping	NA	W/C	W/R	
C07-A7	Wire dressing correct	NA	W/C	W/R	
C07-A8	Conductor properly tied and/or clamped	NA	W/C	W/R	
C07-A9	Wires properly identified	NA	W/C	W/R	
C07-A10	Correct terminal size and type (MV/HV cables only)	NA	W/C	W/R	
C07-A11	Required terminal accessories installed (MV/HV cables only)	NA	W/C	W/R	
C07-A12	Terminal execution in accordance with manufacturer's instructions (MV/HV cables only)	NA	W/C	W/R	
C07-A13	Cable hi-pot test performed (MV/HV cables only)	<b>EFR 06I</b>	<b>W/C</b>	<b>W/R</b>	
C07-A14	Cable optical tests performed (fibre optic cables only)	<b>EFR 06K</b>	<b>W/C</b>	<b>W/R</b>	
<b>C07-B</b>	<b>Final inspection</b>	<b>EFR 06J</b>	<b>W/C</b>	<b>W/R</b>	
<b>C07-B1</b>	<b>Bolted connections tested on both sides</b>	NA	W/C	W/R	
<b>C07-C</b>	<b>Final documentation review</b>	<b>EFR 06J</b>	<b>P</b>	<b>R</b>	
<b>C08</b>	<b>INSTALLATION OF CONTROL STATIONS</b>				
<b>C08-A</b>	<b>Prefabrication of supports</b>				
C08-A1	Installation location as per approved drawings	NA	W/C	R	
<b>C08-B</b>	<b>Installation of supports</b>				

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			CONTR.	OWNER (*)	
C08-B1	Supports installed properly	NA	W/C	R	
C08-B2	Installation & layout as per approved drawings	NA	W/C	R	
<b>C08-C</b>	<b>Installation of control station</b>				
C08-C1	<b>Mounting &amp; location as per drawings</b>	NA	W/C	W/R	
C08-C2	<b>Height, alignment and levelling</b>	NA	W/C	W/R	
C08-C3	Maintenance accessibility	NA	W/C	W/R	
C08-C4	<b>No interference to access ways</b>	NA	W/C	W/R	
C08-C5	<b>Selectors, pushbuttons and padlocks not damaged</b>	NA	W/C	W/R	
C08-C6	<b>Wiring checked and correctness</b>	NA	W/C	W/R	
C08-C7	<b>Labeling check</b>	NA	W/C	W/R	
C08-C8	There are no unauthorized modifications	NA	W/C	W/R	
C08-C9	There are no visible unauthorized modifications	NA	W/C	W/R	
C08-C10	Bolts and cable entry devices are of the correct type	NA	W/C	W/R	
C08-C11	Bolts and cable entry devices are tightened	NA	W/C	W/R	
C08-C12	Apparatus is appropriate to area classification	NA	W/C	W/R	
C08-C13	Apparatus group and temperature class is correct	NA	W/C	W/R	
C08-C14	Apparatus circuit identification available and correct	NA	W/C	W/R	
C08-C15	Flange faces are clean and undamaged	NA	W/C	W/R	
C08-C16	Flange gap are within max values permitted	NA	W/C	W/R	
C08-C17	Enclosure gaskets condition is satisfactory	NA	W/C	W/R	
C08-C18	Enclosed-break devices undamaged	NA	W/C	W/R	
C08-C19	Hermetically sealed devices undamaged	NA	W/C	W/R	
C08-C20	Restricted breathing enclosure satisfactory	NA	W/C	W/R	
C08-C21	Enclosure clearance is sufficient	NA	W/C	W/R	
C08-C22	Breathing and draining devices satisfactory	NA	W/C	W/R	
<b>C08-D</b>	<b>Final inspection</b>	<b>EFR 07A</b>	<b>W/C</b>	<b>W/R</b>	
<b>C08-D1</b>	<b>Selector switches operation (start/stop, ...)</b>	NA	W/C	W/R	
<b>C08-D2</b>	<b>Pushbuttons operation</b>	NA	W/C	W/R	
<b>C08-D3</b>	<b>Ammeter scale and running lights operation</b>	NA	W/C	W/R	
<b>C08-D4</b>	<b>Other components operation</b>	NA	W/C	W/R	
<b>C08-D5</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C08-D6</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C08-D7</b>	<b>Cold galvanizing touch-up paint applied where required</b>	NA	W/C	W/R	
<b>C08-E</b>	<b>Final documentation review</b>	<b>EFR 07A</b>	<b>P</b>	<b>R</b>	

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S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION	ACTION	NOTES
			CONTR.	OWNER (*)	
<b>C09</b>	<b>INSTALLATION OF WELDING OUTLETS</b>				
<b>C09-A</b>	<b>Prefabrication of supports</b>				
C09-A1	Supports prefabricated and painted	NA	W/C	W/R	
C09-A2	Cold galvanizing touch-up paint applied	NA	W/C	W/R	
<b>C09-B</b>	<b>Installation of outlet</b>				
<b>C09-B1</b>	<b>Mounting &amp; location as per drawings</b>	NA	W/C	W/R	
<b>C09-B2</b>	<b>Height, alignment and levelling</b>	NA	W/C	W/R	
C09-B3	Maintenance accessibility	NA	W/C	W/R	
C09-B4	<b>No interference to access ways</b>	NA	W/C	W/R	
C09-B5	<b>Accessories complete and spare holes plugged</b>	NA	W/C	W/R	
<b>C09-B6</b>	<b>Outlet stability</b>	NA	W/C	W/R	
C09-B7	There are no unauthorized modifications	NA	W/C	W/R	
C09-B8	There are no visible unauthorized modifications	NA	W/C	W/R	
C09-B9	Bolts and cable entry devices are of the correct type	NA	W/C	W/R	
C09-B10	Bolts and cable entry devices are tightened	NA	W/C	W/R	
C09-B11	Apparatus is appropriate to area classification	NA	W/C	W/R	
C09-B12	Apparatus group and temperature class is correct	NA	W/C	W/R	
C09-B13	Apparatus circuit identification available and correct	NA	W/C	W/R	
C09-B14	Flange faces are clean and undamaged	NA	W/C	W/R	
C09-B15	Flange gap are within max values permitted	NA	W/C	W/R	
C09-B16	Enclosure gaskets condition is satisfactory	NA	W/C	W/R	
C09-B17	Enclosed-break devices undamaged	NA	W/C	W/R	
C09-B18	Hermetically sealed devices undamaged	NA	W/C	W/R	
C09-B19	Restricted breathing enclosure satisfactory	NA	W/C	W/R	
C09-B20	Enclosure clearance is sufficient	NA	W/C	W/R	
C09-B21	Breathing and draining devices satisfactory	NA	W/C	W/R	
<b>C09-C</b>	<b>Final inspection</b>	<b>EFR 07C</b>	<b>W/C</b>	<b>W/R</b>	
<b>C09-C1</b>	<b>Disconnect switch operation</b>	NA	W/C	W/R	
<b>C09-C2</b>	<b>Plug insertion and interlock</b>	NA	W/C	W/R	
<b>C09-C3</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C09-C4</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C09-D</b>	<b>Final documentation review</b>	<b>EFR 07C</b>	<b>P</b>	<b>R</b>	
<b>C10</b>	<b>INSTALLATION OF CABLE JOINTS</b>				
<b>C10-A</b>	<b>Installation of joint</b>				

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		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION POWER SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1630-001	<b>Rev. No.</b> 0	Page 11 of 14	

**QUALITY CONTROL PLAN**

**ELECTRICAL INSTALLATION  
POWER SYSTEM**

**QUALITY CONTROL ACTIVITIES**

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION	ACTION	NOTES
			CONTR.	OWNER (*)	
C10-A1	Splicing and cables preparation according to manufacturer's instructions	NA	W/C	W/R	
C10-A2	Conductors connection	NA	W/C	W/R	
C10-A3	Tape application	NA	W/C	W/R	
C10-A4	Insulating sleeves application	NA	W/C	W/R	
<b>C10-B</b>	<b>Joint marker plate installation</b>	NA	W/C	W/R	
C10-B1	<b>Joint marker plate installation (underground joints)</b>	NA	W/C	W/R	
<b>C10-C</b>	<b>Final inspection</b>	<b>EFR 07E</b>	<b>W/C</b>	<b>W/R</b>	
<b>C10-C1</b>	<b>Meggering</b>	NA	W/C	W/R	
<b>C10-C2</b>	<b>Cable hi-pot test performed (MV only)</b>	NA	W/C	W/R	
<b>C10-C3</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C10-D</b>	<b>Final documentation review</b>	<b>EFR 07E</b>	<b>P</b>	<b>R</b>	
<b>C11</b>	<b>INSTALLATION OF JUNCTION BOXES</b>				
<b>C11-A</b>	<b>Prefabrication of supports</b>				
C11-A1	Installation location as per approved drawings	NA	W/C	R	
<b>C11-B</b>	<b>Installation of supports</b>				
C11-B1	Supports installed properly	NA	W/C	W/R	
C11-B2	Installation & layout as per approved drawings	NA	W/C	R	
<b>C11-C</b>	<b>Installation of junction box</b>				
C11-C1	<b>Mounting &amp; location as per drawings</b>	NA	W/C	W/R	
C11-C2	<b>Alignment and levelling</b>	NA	W/C	W/R	
C11-C3	<b>Internal wiring and terminals connected</b>	NA	W/C	W/R	
C11-C4	<b>Cables supported properly</b>	NA	W/C	W/R	
C11-C5	<b>Accessories complete and spare holes plugged</b>	NA	W/C	W/R	
C11-C6	<b>Nameplate and grounding connections</b>	NA	W/C	W/R	
C11-C7	Main and auxiliary electrical connections are tight	NA	W/C	W/R	
C11-C8	There are no unauthorized modifications	NA	W/C	W/R	
C11-C9	There are no visible unauthorized modifications	NA	W/C	W/R	
C11-C10	Bolts and cable entry devices are of the correct type	NA	W/C	W/R	
C11-C11	Bolts and cable entry devices are tightened	NA	W/C	W/R	
C11-C12	Apparatus is appropriate to area classification	NA	W/C	W/R	
C11-C13	Apparatus group and temperature class is correct	NA	W/C	W/R	
C11-C14	Apparatus circuit identification available and correct	NA	W/C	W/R	
C11-C15	Flange faces are clean and undamaged	NA	W/C	W/R	

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### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION POWER SYSTEM

#### QUALITY CONTROL ACTIVITIES

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION	ACTION	NOTES
			CONTR.	OWNER (*)	
C11-C16	Flange gap are within max values permitted	NA	W/C	W/R	
C11-C17	Enclosure gaskets condition is satisfactory	NA	W/C	W/R	
C11-C18	Enclosed-break devices undamaged	NA	W/C	W/R	
C11-C19	Hermetically sealed devices undamaged	NA	W/C	W/R	
C11-C20	Restricted breathing enclosure satisfactory	NA	W/C	W/R	
C11-C21	Enclosure clearance is sufficient	NA	W/C	W/R	
C11-C22	Breathing and draining devices satisfactory	NA	W/C	W/R	
<b>C11-D</b>	<b>Final inspection</b>	<b>EFR 07B</b>	<b>W/C</b>	<b>W/R</b>	
<b>C11-D1</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C11-D2</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C11-D3</b>	<b>Cold galvanizing touch-up paint applied where required</b>	NA	W/C	W/R	
<b>C11-E</b>	<b>Final documentation review</b>	<b>EFR 07B</b>	<b>P</b>	<b>R</b>	
<b>C12</b>	<b>INSTALLATION OF VARIOUS EQUIPMENT</b>				
<b>C12-A</b>	<b>Prefabrication of supports</b>				
C12-A1	Supports prefabricated and painted	NA	W/C	W/R	
<b>C12-B</b>	<b>Installation of equipment</b>				
C12-B1	<b>Mounting &amp; location as per drawings</b>	NA	W/C	W/R	
C12-B2	<b>Height, alignment and levelling</b>	NA	W/C	W/R	
C12-B3	Maintenance accessibility	NA	W/C	W/R	
C12-B4	<b>No interference to access ways</b>	NA	W/C	W/R	
C12-B5	<b>Accessories complete</b>	NA	W/C	W/R	
C12-B6	<b>Installation integrity and stability</b>	NA	W/C	W/R	
C12-B7	There are no unauthorized modifications	NA	W/C	W/R	
C12-B8	There are no visible unauthorized modifications	NA	W/C	W/R	
C12-B9	Bolts and cable entry devices are of the correct type	NA	W/C	W/R	
C12-B10	Bolts and cable entry devices are tightened	NA	W/C	W/R	
C12-B11	Apparatus is appropriate to area classification	NA	W/C	W/R	
C12-B12	Apparatus group and temperature class is correct	NA	W/C	W/R	
C12-B13	Apparatus circuit identification available and correct	NA	W/C	W/R	
C12-B14	Flange faces are clean and undamaged	NA	W/C	W/R	
C12-B15	Flange gap are within max values permitted	NA	W/C	W/R	
C12-B16	Enclosure gaskets condition is satisfactory	NA	W/C	W/R	
C12-B17	Enclosed-break devices undamaged	NA	W/C	W/R	
C12-B18	Hermetically sealed devices undamaged	NA	W/C	W/R	
C12-B19	Restricted breathing enclosure satisfactory	NA	W/C	W/R	

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		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
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**QUALITY CONTROL PLAN**

**ELECTRICAL INSTALLATION  
POWER SYSTEM**

**QUALITY CONTROL ACTIVITIES**

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION	ACTION	NOTES
			CONTR.	OWNER (*)	
C12-B20	Enclosure clearance is sufficient	NA	W/C	W/R	
C12-B21	Breathing and draining devices satisfactory	NA	W/C	W/R	
<b>C12-C</b>	<b>Final inspection</b>	<b>EFR 07D</b>	<b>W</b>	<b>S</b>	
<b>C12-C1</b>	<b>Visual inspection and functional test</b>	NA	W/C	W/R	
<b>C12-C2</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C12-C3</b>	<b>Cold galvanizing touch-up paint applied where required</b>	NA	W/C	W/R	
<b>C12-D</b>	<b>Final documentation review</b>	<b>EFR 07D</b>	<b>P</b>	<b>R</b>	
<b>C13</b>	<b>INSTALLATION OF FIRESTOP BARRIERS</b>				
<b>C13-A</b>	<b>Installation</b>				
C13-A1	Installation location as per approved drawings	NA	W/C	W/R	
C13-A2	Mounting of bolts	NA	W/C	W/R	
C13-A3	Mounting of gaskets	NA	W/C	W/R	
C13-A4	Alignment and leveling	NA	W/C	W/R	
C13-A5	Uniform filling of fireproofing material	NA	W/C	W/R	
C13-A6	Cable separation	NA	W/C	W/R	
C13-A7	Cable drip loops done (where applicable)	NA	W/C	W/R	
C13-A8	Cover secured	NA	W/C	W/R	
C13-A9	Final assembly	NA	W/C	W/R	
C13-A10	Silicone sealant applied (where applicable)	NA	W/C	W/R	
<b>C13-B</b>	<b>Final inspection</b>	<b>EFR 05D</b>	<b>W</b>	<b>S</b>	
<b>C13-B1</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C13-B2</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C13-C</b>	<b>Final documentation review</b>	<b>EFR 05D</b>	<b>P</b>	<b>R</b>	

**NOTES:**

- (1) A copy of the document will be delivered to Owner for information.

		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
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### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION POWER SYSTEM

#### QUALITY CONTROL ACTIVITIES

##### GENERAL NOTES

- 1 THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THEJOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY TECHNIP AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN- CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF TECHNIP HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.
- 2 CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT TO TECHNIP/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.

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		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
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**QUALITY CONTROL PLAN**  
**ELECTRICAL INSTALLATION**  
**ELECTRICAL HEAT TRACING SYSTEM**

<b>TYPE OF QUALITY CONTROL REPORT</b>	<b>CERTIFICATION EXTENT</b>
EFR 10A	Electrical Heat Tracing System - Local Distribution Panel Installation Summary Report
EFR 10B	Electrical Heat Tracing System - Local Distribution Panel Functional Test
EFR 10C	Electrical Heat Tracing System - Main Junction Box Installation Summary Report
EFR 10D	Electrical Heat Tracing System - Cold Cable Connection Summary Report
EFR 10E	Electrical Heat Tracing System - Heating Cable Installation Summary Report
EFR 10F	Electrical Heat Tracing System - Heating Cable Components Installation and Connection
EFR 10G	Electrical Heat Tracing System - Temperature Switch Installation Summary Report

**LEGENDA**

- H = HOLD (RFI required - Work stop for inspection)
- W = WITNESS (RFI required)
- WC = 100 % SUPERVISION AND EXAMINATION BY CONTRACTOR.
- P = PREPARATION.
- S = SURVEILLANCE (No RFI)
- R = REVIEW OF REPORTS
- N.A. = NOT APPLICABLE
- A = AUTHORIZATION / APPROVAL
- IFA = ISSUED FOR AUTHORIZATION/APPROVAL
- INFO = FOR INFORMATION
- ! = WARNING (control of document revision status)

			SK Singh				
0	03.05.2020	ISSUED FOR IMPLEMENTATION	SK	PKP / TB	LA	JMC	
<b>REV.</b>	<b>DATE</b>	<b>STATUS</b>	<b>WRITTEN BY</b>	<b>CHECKED BY</b>	<b>APPROVED BY</b>	<b>AUTHOR. BY</b>	
<b>DOCUMENT REVISIONS</b>							

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## ELECTRICAL INSTALLATION ELECTRICAL HEAT TRACING SYSTEM

### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	OWNER (*)	
<b>A</b>	<b>PRELIMINARY ACTIVITIES</b>				
A1	CHECK OF CONTRACTOR DRAWINGS REVISION STATUS	NA	!	!	(1)
A2	CONTRACTOR TECHNICAL SPECIFICATION AND PROCEDURE	NA	W/C	R/A	
A3	CONTRACTOR'S METHOD OF STATEMENT (IF REQUIRED)	NA	P	R/A	
<b>B</b>	<b>MATERIALS - BEFORE AND AFTER INSTALLATION</b>				
B1	IDENTIFICATION AND PRESERVATION STATUS	NA	W/C	W/R	
<b>C01</b>	<b>LOCAL DISTRIBUTION PANEL INSTALLATION</b>				
<b>C01-A</b>	<b>Prefabrication of supports</b>				
C01-A1	Supports prefabricated and painted	NA	W/C	W/R	
<b>C01-B</b>	<b>Installation of supports</b>				
C01-B1	Supports installed properly	NA	W/C	W/R	
C01-B2	Installation & layout as per approved drawings	NA	W/C	R	
C01-B3	Cold galvanizing touch-up paint applied	NA	W/C	W/R	
<b>C01-C</b>	<b>Installation of panelboard</b>				
C01-C1	<b>Mounting &amp; location as per drawings</b>	NA	W/C	R	
C01-C2	<b>Alignment and levelling</b>	NA	W/C	W/R	
C01-C3	<b>Internal wiring meggered and color code &amp; tags checked</b>	NA	W/C	W/R	
C01-C4	<b>Cables supported properly</b>	NA	W/C	W/R	
C01-C5	<b>Accessories complete and spare holes plugged</b>	NA	W/C	W/R	
C01-C6	<b>Breaker ratings &amp; sizes verified</b>	NA	W/C	W/R	
C01-C7	Main and auxiliary electrical connections are tight	NA	W/C	W/R	
C01-C8	There are no unauthorized modifications	NA	W/C	W/R	
C01-C9	There are no visible unauthorized modifications	NA	W/C	W/R	
C01-C10	Bolts and cable entry devices are of the correct type	NA	W/C	W/R	
C01-C11	Bolts and cable entry devices are tightened	NA	W/C	W/R	
C01-C12	Apparatus is appropriate to area classification	NA	W/C	W/R	
C01-C13	Apparatus group and temperature class is correct	NA	W/C	W/R	
C01-C14	Apparatus circuit identification available and correct	NA	W/C	W/R	
C01-C15	Flange faces are clean and undamaged	NA	W/C	W/R	

		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
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Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	OWNER (*)	
C01-C16	Flange gap are within max values permitted	NA	W/C	W/R	
C01-C17	Enclosure gaskets condition is satisfactory	NA	W/C	W/R	
C01-C18	Enclosed-break devices undamaged	NA	W/C	W/R	
C01-C19	Hermetically sealed devices undamaged	NA	W/C	W/R	
C01-C20	Restricted breathing enclosure satisfactory	NA	W/C	W/R	
C01-C21	Fans / enclosure clearance is sufficient	NA	W/C	W/R	
C01-C22	Breathing and draining devices satisfactory	NA	W/C	W/R	
<b>C01-D</b>	<b>Final inspection</b>	<b>EFR 10A</b>	<b>W/C</b>	<b>W/R</b>	
<b>C01-D1</b>	Grounding system	NA	W/C	W/R	
<b>C01-D2</b>	<b>Functional testing done (EFR 10B)</b>	<b>EFR 10B</b>	<b>W/C</b>	<b>W/R</b>	
<b>C01-D3</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C01-D4</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C01-E</b>	<b>Final documentation review</b>	<b>EFR 10A</b>	<b>P</b>	<b>R</b>	
<b>C02</b>	<b>MAIN JUNCTION BOX INSTALLATION</b>				
<b>C02-A</b>	<b>Prefabrication of supports</b>				
C02-A1	Supports prefabricated and painted	NA	W/C	W/R	
<b>C02-B</b>	<b>Installation of supports</b>				
C02-B1	Supports installed properly	NA	W/C	W/R	
C02-B2	Installation & layout as per approved drawings	NA	W/C	R	
C02-B3	Cold galvanizing touch-up paint applied	NA	W/C	W/R	
<b>C02-C</b>	<b>Installation of junction box</b>				
C02-C1	<b>Mounting &amp; location as per drawings</b>	NA	W/C	R	
C02-C2	<b>Alignment and levelling</b>	NA	W/C	W/R	
C02-C3	<b>Internal wiring and terminals connected</b>	NA	W/C	W/R	
C02-C4	<b>Cables supported properly</b>	NA	W/C	W/R	
C02-C5	<b>Accessories complete and spare holes plugged</b>	NA	W/C	W/R	
C02-C6	<b>Nameplate and grounding connections</b>	NA	W/C	W/R	
C02-C7	Main and auxiliary electrical connections are tight	NA	W/C	W/R	
C02-C8	There are no unauthorized modifications	NA	W/C	W/R	

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Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	OWNER (*)	
C02-C9	There are no visible unauthorized modifications	NA	W/C	W/R	
C02-C10	Bolts and cable entry devices are of the correct type	NA	W/C	W/R	
C02-C11	Bolts and cable entry devices are tightened	NA	W/C	W/R	
C02-C12	Apparatus is appropriate to area classification	NA	W/C	W/R	
C02-C13	Apparatus group and temperature class is correct	NA	W/C	W/R	
C02-C14	Apparatus circuit identification available and correct	NA	W/C	W/R	
C02-C15	Flange faces are clean and undamaged	NA	W/C	W/R	
C02-C16	Flange gap are within max values permitted	NA	W/C	W/R	
C02-C17	Enclosure gaskets condition is satisfactory	NA	W/C	W/R	
C02-C18	Enclosed-break devices undamaged	NA	W/C	W/R	
C02-C19	Hermetically sealed devices undamaged	NA	W/C	W/R	
C02-C20	Restricted breathing enclosure satisfactory	NA	W/C	W/R	
C02-C21	Enclosure clearance is sufficient	NA	W/C	W/R	
C02-C22	Breathing and draining devices satisfactory	NA	W/C	W/R	
<b>C02-D</b>	<b>Final inspection</b>	<b>EFR 10C</b>	<b>W</b>	<b>S</b>	
<b>C02-D1</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C02-D2</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C02-E</b>	<b>Final documentation review</b>	<b>EFR 10C</b>	<b>P</b>	<b>R</b>	
<b>C03</b>	<b>COLD CABLE CONNECTION</b>				
<b>C03-A</b>	<b>Installation</b>				
C03-A1	<b>Mounting &amp; location as per drawings</b>	NA	W/C	R	
C03-A2	<b>Alignment and levelling</b>	NA	W/C	W/R	
C03-A3	<b>Internal wiring and terminals connected</b>	NA	W/C	W/R	
C03-A4	<b>Cables supported properly</b>	NA	W/C	W/R	
C03-A5	<b>Accessories complete and spare holes plugged</b>	NA	W/C	W/R	
C03-A6	<b>Nameplate and grounding connections</b>	NA	W/C	W/R	
C03-A7	Main and auxiliary electrical connections are tight	NA	W/C	W/R	
C03-A8	There are no unauthorized modifications	NA	W/C	W/R	
C03-A9	There are no visible unauthorized modifications	NA	W/C	W/R	
C03-A10	Bolts and cable entry devices are of the correct type	NA	W/C	W/R	
C03-A11	Bolts and cable entry devices are tightened	NA	W/C	W/R	
C03-A12	Apparatus is appropriate to area classification	NA	W/C	W/R	

		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION ELECTRICAL HEAT TRACING SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1650-001		<b>Rev. No.</b> 0	Page 5 of 7

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	OWNER (*)	
C03-A13	Apparatus group and temperature class is correct	NA	W/C	W/R	
C03-A14	Apparatus circuit identification available and correct	NA	W/C	W/R	
C03-A15	Flange faces are clean and undamaged	NA	W/C	W/R	
C03-A16	Flange gap are within max values permitted	NA	W/C	W/R	
C03-A17	Enclosure gaskets condition is satisfactory	NA	W/C	W/R	
C03-A18	Enclosed-break devices undamaged	NA	W/C	W/R	
C03-A19	Hermetically sealed devices undamaged	NA	W/C	W/R	
C03-A20	Restricted breathing enclosure satisfactory	NA	W/C	W/R	
C03-A21	Enclosure clearance is sufficient	NA	W/C	W/R	
C03-A22	Breathing and draining devices satisfactory	NA	W/C	W/R	
<b>C03-B</b>	<b>Cable way and wiring</b>				
C03-B1	Conduit and cable tray installed properly	NA	W/C	W/R	
C03-B2	Wires and cables installation	NA	W/C	W/R	
C03-B3	Wiring, glanding and cabling	NA	W/C	W/R	
C03-B4	Grounding and tagging	NA	W/C	W/R	
<b>C03-C</b>	<b>Final inspection</b>	<b>EFR 10D</b>	<b>W/C</b>	<b>W/R</b>	
<b>C03-C1</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C03-C2</b>	<b>As-built marked up copy updated and available</b>	NA	P	W/R	
<b>C03-D</b>	<b>Final documentation review</b>	<b>EFR 10D</b>	<b>P</b>	<b>R</b>	
<b>C04</b>	<b>HEATING CABLE INSTALLATION</b>				
<b>C04-A</b>	<b>Pre-installation checks</b>				
C04-A1	Continuity check on cable reel	NA	W/C	W/R	
C04-A2	Insulation test on cable reel	NA	W/C	W/R	
C04-A3	Verify piping acceptance by piping inspector	NA	W/C	W/R	
C04-A4	Conduits / pipes properly drained	NA	W/C	W/R	
C04-A5	Verify for mechanical damages in heater cables	NA	W/C	W/R	
<b>C04-B</b>	<b>Installation of cables</b>				
C04-B1	The correct cable is on the right pipe in the right location	NA	W/C	W/R	
C04-B2	Heating cable wrapped with the correct pitch	NA	W/C	W/R	
C04-B3	Metallic tape properly applied	NA	W/C	W/R	
C04-B4	Heater cable correctly attached to piping	NA	W/C	W/R	

		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION ELECTRICAL HEAT TRACING SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1650-001		<b>Rev. No.</b> 0	Page 6 of 7

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	OWNER (*)	
C04-B5	Thermostats installation not interfering with insulation	NA	W/C	W/R	
C04-B6	Correct type thermostats installed in the right location	NA	W/C	W/R	
C04-B7	Removability for maintenance verified	NA	W/C	W/R	
C04-B8	Connector components and seals correct	NA	W/C	W/R	
C04-B9	Check correctness of wiring to heaters	NA	W/C	W/R	
C04-B10	Continuity and meggering	NA	W/C	W/R	
<b>C04-C</b>	<b>Installation and connection of components</b>	NA	W/C	W/R	
<b>C04-D</b>	<b>Final inspection</b>	<b>EFR 10E</b>	<b>W</b>	<b>S</b>	
<b>C04-D1</b>	<b>Installation visual inspection acceptable</b>	NA	W/C	W/R	
<b>C04-D2</b>	<b>“Electric traced” labels applied</b>	NA	W/C	W/R	
<b>C04-D3</b>	<b>Startup current</b>	NA	W/C	W/R	
<b>C04-D4</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C04-E</b>	<b>Final documentation review</b>	<b>EFR 10E</b>	<b>P</b>	<b>R</b>	
<b>C05</b>	<b>TEMPERATURE SWITCH INSTALLATION</b>				
<b>C05-A</b>	<b>Installation</b>				
C05-A1	<b>Mounting &amp; location as per drawings</b>	NA	W/C	W/R	
C05-A2	<b>Internal wiring and terminals connected</b>	NA	W/C	W/R	
C05-A3	<b>Device not exposed to mechanical or thermal damages</b>	NA	W/C	W/R	
C05-A4	<b>Device not exposed to direct sunlight or near heat sinks</b>	NA	W/C	W/R	
C05-A5	<b>Device exposed to strongest wind and coolest temp</b>	NA	W/C	W/R	
C05-A6	<b>Accessories complete and spare holes plugged</b>	NA	W/C	W/R	
C05-A7	Main and auxiliary electrical connections are tight	NA	W/C	W/R	
C05-A8	There are no unauthorized modifications	NA	W/C	W/R	
C05-A9	There are no visible unauthorized modifications	NA	W/C	W/R	
C05-A10	Bolts and cable entry devices are of the correct type	NA	W/C	W/R	
C05-A11	Bolts and cable entry devices are tightened	NA	W/C	W/R	
C05-A12	Apparatus is appropriate to area classification	NA	W/C	W/R	
C05-A13	Apparatus group and temperature class is correct	NA	W/C	W/R	
C05-A14	Apparatus circuit identification available and correct	NA	W/C	W/R	
C05-A15	Flange faces are clean and undamaged	NA	W/C	W/R	
C05-A16	Flange gap are within max values permitted	NA	W/C	W/R	
C05-A17	Enclosure gaskets condition is satisfactory	NA	W/C	W/R	

 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION ELECTRICAL HEAT TRACING SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1650-001	<b>Rev. No.</b> 0	Page 7 of 7

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	OWNER (*)	
C05-A18	Enclosed-break devices undamaged	NA	W/C	W/R	
C05-A19	Hermetically sealed devices undamaged	NA	W/C	W/R	
C05-A20	Restricted breathing enclosure satisfactory	NA	W/C	W/R	
C05-A21	Enclosure clearance is sufficient	NA	W/C	W/R	
C05-A22	Breathing and draining devices satisfactory	NA	W/C	W/R	
<b>C05-B</b>	<b>Final inspection</b>	<b>EFR 10G</b>	<b>W</b>	<b>S</b>	
<b>C05-B1</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C05-B2</b>	<b>Thermostat / device operating</b>	NA	W/C	W/R	
<b>C05-B3</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C05-C</b>	<b>Final documentation review</b>	<b>EFR 10G</b>	<b>P</b>	<b>R</b>	

NOTES:

(1) A copy of the document will be delivered to Owner for information.

**GENERAL NOTES**

- 1 THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THEJOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY PMC AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN- CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF PMC HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.
- 2 CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT PMC/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.

 		PROJECT:			
		OWNER:			
QUALITY CONTROL FORM	EFR 10A	PROJ. No.:	QCF REV.	SH. 1 OF 2	
<b>ELECTRICAL HEAT TRACING SYSTEM LOCAL DISTRIBUTION PANEL INSTALLATION SUMMARY REPORT</b>		CONTRACTOR:		EFR 10A N° ____	
<b>GENERAL DATA</b>					
Location / area:		System / subsystem:		Date (dd/mm/yy):	
Is the equipment installed in hazardous area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", the fields marked with an (*) must be filled in)					
(*) Area classification acc. to IEC 60079-10-1 and IEC 60079-10-2: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> Mixed					
(*) Gas group: <input type="checkbox"/> IIA <input type="checkbox"/> IIB <input type="checkbox"/> IIC			(*) Temp. class: <input type="checkbox"/> T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5 <input type="checkbox"/> T6		
<b>EQUIPMENT IDENTIFICATION</b>					
Tag number:		Rated voltage: V		30 mA branch protection: <input type="checkbox"/> Yes <input type="checkbox"/> No	
Manufacturer:		Main breaker rating: A		Feeding cable tag:	
Serial number:		Number of branch breakers:		Ref. drawing:	
		(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No		(*) Execution: EEx-__ II__ T__	
<b>ASSOCIATED CABLE GLANDS</b>					
Type:		Material:		Size:	
		(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No		(*) Execution: EEx-__ II__ T__	
				Quantity installed: n.	
INSPECTIONS (Ref. to QCP 1650.01)		N.A.	ACC.	REPORT / REFERENCE	
				INSPECTOR SIGNATURE & DATE	
				CONTRACTOR	TECHNIP
				OWNER	
<b>A - Prefabrication of supports</b>					
A1	Supports prefabricated and painted	<input type="checkbox"/>	<input type="checkbox"/>		
<b>B - Installation of supports</b>					
B1	Supports installed properly	<input type="checkbox"/>	<input type="checkbox"/>		
B2	Installation & layout as per approved drawings	<input type="checkbox"/>	<input type="checkbox"/>		
B3	Cold galvanizing touch-up paint applied	<input type="checkbox"/>	<input type="checkbox"/>		
<b>C - Installation of panelboard</b>					
C1	Mounting & location as per drawings	<input type="checkbox"/>	<input type="checkbox"/>		
C2	Alignment and levelling	<input type="checkbox"/>	<input type="checkbox"/>		
C3	Internal wiring meggered and color code & tags checked	<input type="checkbox"/>	<input type="checkbox"/>		
C4	Cables supported properly	<input type="checkbox"/>	<input type="checkbox"/>		
C5	Accessories complete and spare holes plugged	<input type="checkbox"/>	<input type="checkbox"/>		
C6	Breaker ratings & sizes verified	<input type="checkbox"/>	<input type="checkbox"/>		
C7	Main and auxiliary electrical connections are tight	<input type="checkbox"/>	<input type="checkbox"/>		
C8	There are no unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>		
C9	There are no visible unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>		
C10	Bolts and cable entry devices are of the correct type	<input type="checkbox"/>	<input type="checkbox"/>		
C11	Bolts and cable entry devices are tightened	<input type="checkbox"/>	<input type="checkbox"/>		
C12	(*) Apparatus is appropriate to area classification	<input type="checkbox"/>	<input type="checkbox"/>		
C13	(*) Apparatus group and temperature class is correct	<input type="checkbox"/>	<input type="checkbox"/>		
C14	(*) Apparatus circuit identification available and correct	<input type="checkbox"/>	<input type="checkbox"/>		
C15	(*) Flange faces are clean and undamaged (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>		
C16	(*) Flange gap are within max values permitted (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>		
C17	(*) Enclosure gaskets condition is satisfactory (Note 2)	<input type="checkbox"/>	<input type="checkbox"/>		





PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 10B

PROJ. No.:

QCF REV.

SH. 1 OF 1

**ELECTRICAL HEAT TRACING SYSTEM  
LOCAL DISTRIBUTION PANEL FUNCTIONAL TEST**

CONTRACTOR:

EFR 10B N° \_\_\_\_

**GENERAL DATA**

Location / area:	System / subsystem:	Date (dd/mm/yy):
Is the equipment installed in hazardous area? <input type="checkbox"/> Yes <input type="checkbox"/> No		
(*) Area classification acc. to IEC 60079-10-1 and IEC 60079-10-2: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> Mixed		
(*) Gas group: <input type="checkbox"/> IIA <input type="checkbox"/> IIB <input type="checkbox"/> IIC      (*) Temp. class: <input type="checkbox"/> T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5 <input type="checkbox"/> T6		

**EQUIPMENT IDENTIFICATION**

Tag number:	Rated voltage: V	30 mA branch protection: <input type="checkbox"/> Yes <input type="checkbox"/> No
Manufacturer:	Main breaker rating: A	Feeding cable tag:
Serial number:	Number of branch breakers:	Ref. drawing:

**TESTING**

Multimeter manuf.:	Type:	Calibration date:	Recalibration date:
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**MAIN BREAKER OPERATION**

#	Tag	Open		Close		Continuity		Aux. contacts			30 mA device op.			
		Pass	Fail	Pass	Fail	Pass	Fail	P	F	NA	P	F	NA	
		<input type="checkbox"/>												

**BRANCH BREAKERS OPERATION**

#	Circuit	Open		Close		Continuity		Aux. contacts			30 mA device op.			
		Pass	Fail	Pass	Fail	Pass	Fail	P	F	NA	P	F	NA	
1.		<input type="checkbox"/>												
2.		<input type="checkbox"/>												
3.		<input type="checkbox"/>												
4.		<input type="checkbox"/>												
5.		<input type="checkbox"/>												
6.		<input type="checkbox"/>												
7.		<input type="checkbox"/>												
8.		<input type="checkbox"/>												
9.		<input type="checkbox"/>												
10.		<input type="checkbox"/>												
11.		<input type="checkbox"/>												
12.		<input type="checkbox"/>												
13.		<input type="checkbox"/>												
14.		<input type="checkbox"/>												
15.		<input type="checkbox"/>												
16.		<input type="checkbox"/>												
17.		<input type="checkbox"/>												
18.		<input type="checkbox"/>												

**CONTROL OPERATION**

Manual mode	Pass	<input type="checkbox"/>	Fail	<input type="checkbox"/>	Auto mode	Pass	<input type="checkbox"/>	Fail	<input type="checkbox"/>
Remote Alarm	Pass	<input type="checkbox"/>	Fail	<input type="checkbox"/>	Local signalization (lamps)	Pass	<input type="checkbox"/>	Fail	<input type="checkbox"/>

**CONTROL UNIT SETTING**

Thermostat On/Off	Set	°C	Actual	°C	Pass	<input type="checkbox"/>	Fail	<input type="checkbox"/>
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REMARKS :

INSPECTORS	CONTRACTOR	TECHNIP	OWNER
NAME			
SIGNATURE			
DATE			

 		PROJECT:		
		OWNER:		
QUALITY CONTROL FORM	EFR 10C	PROJ. No.:	QCF REV.	SH. 1 OF 2
<b>ELECTRICAL HEAT TRACING SYSTEM MAIN JUNCTION BOX INSTALLATION SUMMARY REPORT</b>		CONTRACTOR:		EFR 10C N° ____
<b>GENERAL DATA</b>				
Tag:	Location / area:	System / subsystem:	Date (dd/mm/yy):	
Is the equipment installed in hazardous area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", the fields marked with an (*) must be filled in)				
(*) Area classification acc. to IEC 60079-10-1 and IEC 60079-10-2: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> Mixed				
(*) Gas group: <input type="checkbox"/> IIA <input type="checkbox"/> IIB <input type="checkbox"/> IIC			(*) Temp. class: <input type="checkbox"/> T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5 <input type="checkbox"/> T6	
<b>MAIN JUNCTION BOX</b>				
Manufacturer:	Model:	Size:	Quantity installed: n.	
	(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No	(*) Execution: EEx-__ II__ T		
<b>ASSOCIATED CABLE GLANDS</b>				
Type:	Material:	Size:	Quantity installed: n.	
	(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No	(*) Execution: EEx-__ II__ T		
INSPECTIONS (Ref. to QCF 1650.01)		N.A.	ACC.	REPORT / REFERENCE
		INSPECTOR SIGNATURE & DATE		
		CONTRACTOR    TECHNIP    OWNER		
<b>A - Prefabrication of supports</b>				
A1	Supports prefabricated and painted	<input type="checkbox"/>	<input type="checkbox"/>	
<b>B - Installation of supports</b>				
B1	Supports installed properly	<input type="checkbox"/>	<input type="checkbox"/>	
B2	Installation & layout as per approved drawings	<input type="checkbox"/>	<input type="checkbox"/>	
B3	Cold galvanizing touch-up paint applied	<input type="checkbox"/>	<input type="checkbox"/>	
<b>C - Installation of junction box</b>				
C1	Mounting & location as per drawings	<input type="checkbox"/>	<input type="checkbox"/>	
C2	Alignment and levelling	<input type="checkbox"/>	<input type="checkbox"/>	
C3	Internal wiring and terminals connected	<input type="checkbox"/>	<input type="checkbox"/>	
C4	Cables supported properly	<input type="checkbox"/>	<input type="checkbox"/>	
C5	Accessories complete and spare holes plugged	<input type="checkbox"/>	<input type="checkbox"/>	
C6	Nameplate and grounding connections	<input type="checkbox"/>	<input type="checkbox"/>	
C7	Main and auxiliary electrical connections are tight	<input type="checkbox"/>	<input type="checkbox"/>	
C8	There are no unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>	
C9	There are no visible unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>	
C10	Bolts and cable entry devices are of the correct type	<input type="checkbox"/>	<input type="checkbox"/>	
C11	Bolts and cable entry devices are tightened	<input type="checkbox"/>	<input type="checkbox"/>	
C12	(*) Apparatus is appropriate to area classification	<input type="checkbox"/>	<input type="checkbox"/>	
C13	(*) Apparatus group and temperature class is correct	<input type="checkbox"/>	<input type="checkbox"/>	
C14	(*) Apparatus circuit identification available and correct	<input type="checkbox"/>	<input type="checkbox"/>	
C15	(*) Flange faces are clean and undamaged (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>	
C16	(*) Flange gap are within max values permitted (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>	
C17	(*) Enclosure gaskets condition is satisfactory (Note 2)	<input type="checkbox"/>	<input type="checkbox"/>	
C18	(*) Enclosed-break devices undamaged (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>	



 		PROJECT:			
		OWNER:			
QUALITY CONTROL FORM	EFR 10D	PROJ. No.:	QCF REV.	SH. 1 OF 2	
<b>ELECTRICAL HEAT TRACING SYSTEM COLD CABLE CONNECTION SUMMARY REPORT</b>		CONTRACTOR:		EFR 10D N° ____	
<b>GENERAL DATA</b>					
Tag:	Location / area:	System / subsystem:	Date (dd/mm/yy):		
Is the equipment installed in hazardous area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", the fields marked with an (*) must be filled in)					
(*) Area classification acc. to IEC 60079-10-1 and IEC 60079-10-2: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> Mixed					
(*) Gas group: <input type="checkbox"/> IIA <input type="checkbox"/> IIB <input type="checkbox"/> IIC			(*) Temp. class: <input type="checkbox"/> T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5 <input type="checkbox"/> T6		
<b>JUNCTION BOXES</b>					
Manufacturer:	Model:	Size:	Quantity installed: n.		
(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No		(*) Execution: EEx-__ II__ T__			
<b>ASSOCIATED CABLE GLANDS</b>					
Type:	Material:	Size:	Quantity installed: n.		
(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No		(*) Execution: EEx-__ II__ T__			
INSPECTIONS (Ref. to QCP 1650.01)		N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE
					CONTRACTOR    TECHNIP    OWNER
<b>A - Installation</b>					
A1.	Mounting & location as per drawings	<input type="checkbox"/>	<input type="checkbox"/>		
A2.	Maintenance accessibility	<input type="checkbox"/>	<input type="checkbox"/>		
A3.	Internal wiring and terminals connected	<input type="checkbox"/>	<input type="checkbox"/>		
A4.	Cables supported properly	<input type="checkbox"/>	<input type="checkbox"/>		
A5.	Accessories complete and spare holes plugged	<input type="checkbox"/>	<input type="checkbox"/>		
A6.	Nameplate and grounding connections	<input type="checkbox"/>	<input type="checkbox"/>		
A7.	Main and auxiliary electrical connections are tight	<input type="checkbox"/>	<input type="checkbox"/>		
A8.	There are no unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>		
A9.	There are no visible unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>		
A10.	Bolts and cable entry devices are of the correct type	<input type="checkbox"/>	<input type="checkbox"/>		
A11.	Bolts and cable entry devices are tightened	<input type="checkbox"/>	<input type="checkbox"/>		
A12.	(*) Apparatus is appropriate to area classification	<input type="checkbox"/>	<input type="checkbox"/>		
A13.	(*) Apparatus group and temperature class is correct	<input type="checkbox"/>	<input type="checkbox"/>		
A14.	(*) Apparatus circuit identification available and correct	<input type="checkbox"/>	<input type="checkbox"/>		
A15.	(*) Flange faces are clean and undamaged (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>		
A16.	(*) Flange gap are within max values permitted (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>		
A17.	(*) Enclosure gaskets condition is satisfactory (Note 2)	<input type="checkbox"/>	<input type="checkbox"/>		
A18.	(*) Enclosed-break devices undamaged (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>		
A19.	(*) Hermetically sealed devices undamaged (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>		
A20.	(*) Restricted breathing enclosure satisfactory (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>		
A21.	(*) Enclosure clearance is sufficient (Note 4)	<input type="checkbox"/>	<input type="checkbox"/>		
A22.	(*) Breathing and draining devices satisfactory (Note 4)	<input type="checkbox"/>	<input type="checkbox"/>		



 		PROJECT:			
		OWNER:			
QUALITY CONTROL FORM		EFR 10E	PROJ. No.:	QCF REV.	SH. 1 OF 2
ELECTRICAL HEAT TRACING SYSTEM HEATING CABLE INSTALLATION SUMMARY REPORT			CONTRACTOR:		EFR 10E N° ____
<b>GENERAL DATA</b>					
Tag:		Location / area:		System / subsystem:	
Date (dd/mm/yy):					
Is the equipment installed in hazardous area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", the fields marked with an (*) must be filled in)					
(*) Area classification acc. to IEC 60079-10-1 and IEC 60079-10-2: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> Mixed					
(*) Gas group: <input type="checkbox"/> IIA <input type="checkbox"/> IIB <input type="checkbox"/> IIC			(*) Temp. class: <input type="checkbox"/> T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5 <input type="checkbox"/> T6		
<b>LINE / EQUIPMENT DATA</b>					
Line No.:		Line No.:		Line No.:	
Line No.:		Line No.:		Line No.:	
Equipment No.:		Heating circuit tag:			
<b>TRACING CABLE DATA</b>					
Cable type: <input type="checkbox"/> Self-regulating <input type="checkbox"/> Mineral ins.		Manufacturer / model:		Thermostat <input type="checkbox"/> Yes <input type="checkbox"/> No	
Associated instrument / line tag:			Ref. drawing:		Rev.
Panel tag:		Circuit number:		Breaker rating (A):	
(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No		(*) Execution: EEx-__ II__ T__		Heater length (m):	
INSPECTIONS (Ref. to QCP 1650.01)		N.A.		ACC.	
				REPORT / REFERENCE (*)	
				INSPECTOR SIGNATURE & DATE	
				CONTRACTOR	
				TECHNIP	
				OWNER	
<b>A - Prefabrication of supports</b>					
A1.	Continuity check on cable reel	Value: MΩ	<input type="checkbox"/>	<input type="checkbox"/>	
A2.	Insulation test on cable reel	Value: MΩ	<input type="checkbox"/>	<input type="checkbox"/>	
A3.	Verify piping acceptance by piping inspector		<input type="checkbox"/>	<input type="checkbox"/>	
A4.	Conduits / pipes properly drained		<input type="checkbox"/>	<input type="checkbox"/>	
A5.	Verify for mechanical damages in heater cables		<input type="checkbox"/>	<input type="checkbox"/>	
<b>B - Installation of cables</b>					
B1.	The correct cable is on the right pipe in the right location		<input type="checkbox"/>	<input type="checkbox"/>	
B2.	Heating cable wrapped with the correct pitch		<input type="checkbox"/>	<input type="checkbox"/>	
B3.	Metallic tape properly applied		<input type="checkbox"/>	<input type="checkbox"/>	
B4.	Heater cable correctly attached to piping		<input type="checkbox"/>	<input type="checkbox"/>	
B5.	Thermostats installation not interfering with insulation		<input type="checkbox"/>	<input type="checkbox"/>	
B6.	Correct type thermostats installed in the right location		<input type="checkbox"/>	<input type="checkbox"/>	
B7.	Removability for maintenance verified		<input type="checkbox"/>	<input type="checkbox"/>	
B8.	Connector components and seals correct		<input type="checkbox"/>	<input type="checkbox"/>	
B9.	Check correctness of wiring to heaters		<input type="checkbox"/>	<input type="checkbox"/>	
B10.	Continuity and meggering		<input type="checkbox"/>	<input type="checkbox"/>	
<b>CONTINUITY AND MEGGERING (*)</b>					
Megger manuf:		Type:		Calibration date:	
				Recalibration date:	
Time (hh/mm):		Amb. temperature:		Humidity: %	
		<input type="checkbox"/> °C <input type="checkbox"/> °F			
Test voltage and time:		____ kVDC for ____ min		Cable continuity	
				Meggering (before pipe insulation)	
				Meggering (after pipe insulation)	
Acceptance criteria:		I. R. > ____ MΩ		MΩ	
				MΩ	





 		PROJECT:					
		OWNER:					
QUALITY CONTROL FORM	EFR 10G	PROJ. No.:	QCF REV.	SH. 1 OF 2			
<b>ELECTRICAL HEAT TRACING SYSTEM TEMPERATURE SWITCH INSTALLATION SUMMARY REPORT</b>		CONTRACTOR:		EFR 10G N° ____			
<b>GENERAL DATA</b>							
Tag:	Location / area:	System / subsystem:	Date (dd/mm/yy):				
Is the equipment installed in hazardous area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", the fields marked with an (*) must be filled in)							
(*) Area classification acc. to IEC 60079-10-1 and IEC 60079-10-2: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> Mixed							
(*) Gas group: <input type="checkbox"/> IIA <input type="checkbox"/> IIB <input type="checkbox"/> IIC							
(*) Temp. class: <input type="checkbox"/> T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5 <input type="checkbox"/> T6							
<b>THERMOSTAT / TEMPERATURE CONTROL DEVICE</b>							
Manufacturer:	Model:	Size:	Quantity installed: n.				
(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No							
(*) Execution: EEx- II T							
<b>ASSOCIATED CABLE GLANDS</b>							
Type:	Material:	Size:	Quantity installed: n.				
(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No							
(*) Execution: EEx- II T							
INSPECTIONS (Ref. to QCP 1650.01)		N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
					CONTRACTOR	TECHNIP	OWNER
<b>A - Installation</b>							
A1.	Mounting & location as per drawings	<input type="checkbox"/>	<input type="checkbox"/>				
A2.	Internal wiring and terminals connected	<input type="checkbox"/>	<input type="checkbox"/>				
A3.	Device not exposed to mechanical or thermal damages	<input type="checkbox"/>	<input type="checkbox"/>				
A4.	Device not exposed to direct sunlight or near heat sinks	<input type="checkbox"/>	<input type="checkbox"/>				
A5.	Device exposed to strongest wind and coolest temp	<input type="checkbox"/>	<input type="checkbox"/>				
A6.	Accessories complete and spare holes plugged	<input type="checkbox"/>	<input type="checkbox"/>				
A7.	Main and auxiliary electrical connections are tight	<input type="checkbox"/>	<input type="checkbox"/>				
A8.	There are no unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>				
A9.	There are no visible unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>				
A10.	Bolts and cable entry devices are of the correct type	<input type="checkbox"/>	<input type="checkbox"/>				
A11.	Bolts and cable entry devices are tightened	<input type="checkbox"/>	<input type="checkbox"/>				
A12.	(*) Apparatus is appropriate to area classification	<input type="checkbox"/>	<input type="checkbox"/>				
A13.	(*) Apparatus group and temperature class is correct	<input type="checkbox"/>	<input type="checkbox"/>				
A14.	(*) Apparatus circuit identification available and correct	<input type="checkbox"/>	<input type="checkbox"/>				
A15.	(*) Flange faces are clean and undamaged (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>				
A16.	(*) Flange gap are within max values permitted (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>				
A17.	(*) Enclosure gaskets condition is satisfactory (Note 2)	<input type="checkbox"/>	<input type="checkbox"/>				
A18.	(*) Enclosed-break devices undamaged (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>				
A19.	(*) Hermetically sealed devices undamaged (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>				
A20.	(*) Restricted breathing enclosure satisfactory (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>				
A21.	(*) Enclosure clearance is sufficient (Note 4)	<input type="checkbox"/>	<input type="checkbox"/>				
A22.	(*) Breathing and draining devices satisfactory (Note 4)	<input type="checkbox"/>	<input type="checkbox"/>				





 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
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**QUALITY CONTROL PLAN**  
ELECTRICAL INSTALLATION CATHODIC PROTECTION SYSTEM

**QUALITY CONTROL ACTIVITIES**

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>A</b>	<b>PRELIMINARY ACTIVITIES</b>				
A1	CHECK OF CONTRACTOR DRAWINGS REVISION STATUS	NA	!	!	
A2	CONTRACTOR TECHNICAL SPECIFICATION AND PROCEDURE	NA	INFO	A	
A3	CONTRACTOR'S METHOD OF STATEMENT (IF REQUIRED)	NA	P	A	(1)
<b>B</b>	<b>MATERIALS - BEFORE AND AFTER INSTALLATION</b>				
<b>B1</b>	<b>IDENTIFICATION AND PRESERVATION STATUS</b>	NA	WC	S	
<b>C01</b>	<b>INSTALLATION OF TRANSFORMER RECTIFIER</b>				
<b>C01-A</b>	<b>Transportation and alignment</b>				
C01-A1	Compliance of equipment rating and nameplate with documentation	NA	WC	S	
C01-A2	No indication of rough handling	NA	WC	S	
C01-A3	All shipping bracings removed	NA	WC	S	
C01-A4	Required area and equipment clearances	NA	WC	S	
C01-A5	Transformer rectifier correctly aligned and levelled	NA	WC	S	
<b>C01-B</b>	<b>Mechanical installation</b>				
C01-B1	Transformer rectifier correctly anchored on its foundation	NA	WC	S	
C01-B2	No missing hardware and accessory components not damaged	NA	WC	S	
C01-B3	Doors tightly sealed and aligned	NA	WC	S	
C01-B4	Nameplates	NA	WC	S	
C01-B5	Insulating liquid filling and level check	NA	WC	S	
C01-B6	Oil treatment (only where applicable)	NA	WC	S	
C01-B7	Operability of all valves (drain, sample, etc) and flange gaskets conditions	NA	WC	S	
<b>C01-C</b>	<b>Electrical installation</b>				
C01-C1	Earthing connections done	NA	WC	S	
C01-C2	Correct tap settings	NA	WC	S	
C01-C3	Internal wiring checked and meggered	NA	WC	S	

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## QUALITY CONTROL PLAN

### ELECTRICAL INSTALLATION CATHODIC PROTECTION SYSTEM

#### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C01-C4	Correct operation of protective devices and their alarm and trip circuits	NA	WC	S	
C01-C5	Correct operation of metering instruments and lamps	NA	WC	S	
<b>C01-D</b>	<b>Testing</b>	<b>EFR 11A</b>	WC	W/R	
<b>C01-E</b>	<b>Final inspection</b>	<b>EFR 11A</b>	WC	W/R	
<b>C01-E1</b>	<b>Final visual inspection</b>	NA	WC	W/R	
<b>C01-E2</b>	<b>Tests on rectifier performed</b>	<b>EFR 11A</b>	WC	W/R	
<b>C01-E3</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C01-F</b>	<b>Final documentation review</b>	<b>EFR 11A</b>	P	R	
<b>C02</b>	<b>ANODES INSTALLATION AND CONNECTION</b>				
<b>C02-A</b>	<b>Installation</b>				
C02-A1	Location as per drawings	NA	WC	S	
C02-A2	Surface / bed preparation (ribbon/mesh anodes)	NA	WC	S	
C02-A3	Burial depth	NA	WC	S	
C02-A4	Distance from nearest pipe	NA	WC	S	
C02-A5	Interdistance (ribbon/mesh anodes)	NA	WC	S	
C02-A6	Backfilling	NA	WC	S	
C02-A7	Conduits correctly sized	NA	WC	S	
C02-A8	Cable tail continuity verified	NA	WC	S	
C02-A9	Cables connected and tagged at both ends	NA	WC	S	
C02-A10	Vent pipe installed (if applicable)	NA	WC	S	
<b>C02-B</b>	<b>Tests and final inspection</b>	<b>EFR 11C</b>	WC	W/R	
<b>C02-B1</b>	<b>Anode resistance</b>	NA	WC	W/R	
<b>C02-B2</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C02-C</b>	<b>Final documentation review</b>	<b>EFR 11C</b>	P	R	
<b>C03</b>	<b>REFERENCE CELLS INSTALLATION AND CONNECTION</b>				
<b>C03-A</b>	<b>Installation</b>				

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## QUALITY CONTROL PLAN

### ELECTRICAL INSTALLATION CATHODIC PROTECTION SYSTEM

#### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C03-A1	Pre-installation calibration against standard reference electrode done	NA	WC	S	
C03-A2	Location as per drawings	NA	WC	S	
C03-A3	Cell soaking (pre-installation)	NA	WC	S	
C03-A4	Correct position and installation	NA	WC	S	
C03-A5	Negative cable and wetting pipes provided	NA	WC	S	
C03-A6	Backfilling and cell soaking (post-installation)	NA	WC	S	
C03-A7	Cable tail continuity verified	NA	WC	S	
<b>C03-B</b>	<b>Tests and final inspection</b>	<b>EFR 11D</b>	WC	W/R	
<b>C03-B1</b>	<b>DC resistance of the monitoring cable</b>	<b>EFR 11D</b>	WC	W/R	
<b>C03-B2</b>	<b>Voltage between cell &amp; anode</b>	<b>EFR 11D</b>	WC	W/R	
<b>C03-B3</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C03-C</b>	<b>Final documentation review</b>	<b>EFR 11D</b>	P	R	
<b>C04</b>	<b>TEST STATIONS INSTALLATION AND CONNECTION</b>				
<b>C04-A</b>	<b>Installation</b>				
C04-A1	Correct and solid vertical installation	NA	WC	S	
C04-A2	Conduit correctly sized	NA	WC	S	
C04-A3	Cable continuity verified and internal wiring connected	NA	WC	S	
<b>C04-B</b>	<b>Tests and final inspection</b>	<b>EFR 11E</b>	WC	W/R	
<b>C04-B1</b>	<b>Cable continuity verified and internal wiring connected</b>	<b>EFR 11E</b>	WC	W/R	
<b>C04-B2</b>	<b>Shunt resistance checked</b>	<b>EFR 11E</b>	WC	W/R	
<b>C04-C</b>	<b>Final documentation review</b>	<b>EFR 11E</b>	P	R	
<b>C05</b>	<b>JUNCTION BOXES INSTALLATION</b>				
<b>C05-A</b>	<b>Installation</b>				
C05-A1	Layout and mounting correct	NA	WC	S	
C05-A2	Cover not damaged	NA	WC	S	
C05-A3	Internal wirings connected	NA	WC	S	
C05-A4	Labeling check	NA	WC	S	

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	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
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### QUALITY CONTROL PLAN

#### ELECTRICAL INSTALLATION CATHODIC PROTECTION SYSTEM

#### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C05-A5	Grounding connections done	NA	WC	S	
<b>C05-B</b>	<b>Tests and final inspection</b>	<b>EFR 11F</b>	WC	W/R	
C05-B1	Apparatus is appropriate to area classification	NA	WC	W/R	
C05-B2	Apparatus group and temperature class is correct	NA	WC	W/R	
C05-B3	Apparatus circuit identification available and correct	NA	WC	W/R	
C05-B4	There are no unauthorized modifications	NA	WC	W/R	
C05-B5	There are no visible unauthorized modifications	NA	WC	W/R	
C05-B6	Bolts and cable entry devices are of the correct type	NA	WC	W/R	
C05-B7	Bolts and cable entry devices are tightened	NA	WC	W/R	
C05-B8	Flange faces are clean and undamaged	NA	WC	W/R	
C05-B9	Flange gap are within max values permitted	NA	WC	W/R	
C05-B10	Main and auxiliary electrical connections are tight	NA	WC	W/R	
C05-B11	Enclosure gaskets condition is satisfactory	NA	WC	W/R	
C05-B12	Enclosure clearance is sufficient	NA	WC	W/R	
C05-B13	Breathing and draining devices satisfactory	NA	WC	W/R	
<b>C05-C</b>	<b>Final documentation review</b>	<b>EFR 11F</b>	P	R	
<b>C06</b>	<b>CABLES INSTALLATION</b>				
<b>C06-A</b>	<b>Installation</b>				
C06-A1	Trench/duct characteristics, location, burial depth and installation check	NA	WC	S	
C06-A2	Routing acc. to drawings and check of interference with other buried systems	NA	WC	S	
C06-A3	Check if the material is damaged and its conformance to specification, drawings	NA	WC	S	
C06-A4	Conductor type, material, size and insulation verified	NA	WC	S	
C06-A5	Conductor laid properly and protected where required	NA	WC	S	
<b>C06-B</b>	<b>Testing</b>	<b>EFR 11G</b>	WC	W/R	
<b>C06-C</b>	<b>Final documentation review</b>	<b>EFR 11G</b>	P	R	
<b>C07</b>	<b>CABLES CONNECTION</b>				

 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
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**QUALITY CONTROL PLAN**  
ELECTRICAL INSTALLATION  
CATHODIC PROTECTION SYSTEM

**QUALITY CONTROL ACTIVITIES**

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>C07-A</b>	<b>Connection</b>				
C07-A1	Connection location as per drawings	NA	WC	S	
C07-A2	Coating, mill scale, oxide, grease, and dirt remove from welding area	NA	WC	S	
C07-A3	Thermite brazing properly done	NA	WC	S	
C07-A4	Thermite brazing connection check (tapping)	NA	WC	S	
C07-A5	Coating repair properly done	NA	WC	S	
C07-A6	Cable gland size correct (JB side)	NA	WC	S	
C07-A7	Conductor properly tied and/or clamped (JB side)	NA	WC	S	
C07-A8	Wires properly identified (JB side)	NA	WC	S	
<b>C07-B</b>	<b>Testing</b>	<b>EFR 11H</b>	WC	W/R	
<b>C07-C</b>	<b>Final documentation review</b>	<b>EFR 11H</b>	P	R	

NOTES:

- (1) A copy of the document will be delivered to Owner for information.

**GENERAL NOTES**

- THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THE JOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY TECHNIP AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN- CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF TECHNIP HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.
- CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT TO TECHNIP/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.

 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
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**QUALITY CONTROL PLAN**

 		PROJECT:		
QUALITY CONTROL FORM		OWNER:		
<b>EFR 11A</b>		PROJ. No.:	QCF REV.:	SH. 1 OF 2
<b>CATHODIC PROTECTION SYSTEM TRANSFORMER RECTIFIER MECHANICAL INSTALLATION, ELECTRICAL INSTALLATION &amp; TESTS - SUMMARY REPORT</b>		CONTRACTOR:		EFR 11A N° ____
<b>GENERAL DATA</b>				
Location / area:		System / subsystem:		Date (dd/mm/yy):
Rectifier tag:		Manufacturer / Type:		Serial no.:
AC input:	Current: A	Voltage: V	Phases:	Frequency: Hz
DC output:	Current: A	Voltage: V	Shunt size: mV	A
INSPECTIONS (Ref. to QCP 1670.01)	N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE CONTRACT.    TECHNIP    OWNER
<b>A - Transportation and alignment</b>				
A1.	Compliance of equipment rating and nameplate with documentation	<input type="checkbox"/>	<input type="checkbox"/>	
A2.	No indication of rough handling	<input type="checkbox"/>	<input type="checkbox"/>	
A3.	All shipping bracings removed	<input type="checkbox"/>	<input type="checkbox"/>	
A4.	Required area and equipment clearances	<input type="checkbox"/>	<input type="checkbox"/>	
A5.	Transformer rectifier correctly aligned and levelled	<input type="checkbox"/>	<input type="checkbox"/>	
<b>B - Mechanical installation</b>				
B1.	Transformer rectifier correctly anchored on its foundation	<input type="checkbox"/>	<input type="checkbox"/>	
B2.	No missing hardware and accessory components not damaged	<input type="checkbox"/>	<input type="checkbox"/>	
B3.	Doors tightly sealed and aligned	<input type="checkbox"/>	<input type="checkbox"/>	
B4.	Nameplates	<input type="checkbox"/>	<input type="checkbox"/>	
B5.	Insulating liquid filling and level check	<input type="checkbox"/>	<input type="checkbox"/>	
B6.	Oil treatment (only where applicable)	<input type="checkbox"/>	<input type="checkbox"/>	
B7.	Operability of all valves (drain, sample, etc) and flange gaskets conditions	<input type="checkbox"/>	<input type="checkbox"/>	
<b>C - Electrical installation</b>				
C1.	Earthing connections done	<input type="checkbox"/>	<input type="checkbox"/>	
C2.	Correct tap settings	<input type="checkbox"/>	<input type="checkbox"/>	
C3.	Internal wiring checked and meggered	<input type="checkbox"/>	<input type="checkbox"/>	
C4.	Correct operation of protective devices and their alarm and trip circuits	<input type="checkbox"/>	<input type="checkbox"/>	
C5.	Correct operation of metering instruments and lamps	<input type="checkbox"/>	<input type="checkbox"/>	
<b>D - Testing</b>				
<b>INSULATION TEST (MEGGER)</b>				
Megger manuf.:		Type:	Calibration date:	Recalibration date:
Primary to ground		Test performed at ___ V DC for ___ min	Value	Pass
		Acceptance criteria: I. R. > ___ MΩ	MΩ	<input type="checkbox"/>
<b>TEST READINGS</b>				
First energization date (dd/mm/yy):				
Rectifier AC voltage setting		Rectifier DC output		Date (dd/mm/yy)
Coarse	Fine	Volts	Amps	
				Contractor signature
				Remarks









 		PROJECT:				
		OWNER:				
QUALITY CONTROL FORM		EFR 11F	PROJ. No.:	QCF REV.	SH. 1 OF 1	
<b>CATHODIC PROTECTION SYSTEM JUNCTION BOXES INSTALLATION SUMMARY REPORT</b>			CONTRACTOR:		EFR 11F N° ____	
<b>GENERAL DATA</b>						
Tag:		Location / area:		System / subsystem:		
				Date (dd/mm/yy):		
Is the equipment installed in hazardous area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", the fields marked with an (*) must be filled in)						
(*) Area classification acc. to IEC 60079-10-1 and IEC 60079-10-2: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> Mixed						
(*) Gas group: <input type="checkbox"/> IIA <input type="checkbox"/> IIB <input type="checkbox"/> IIC			(*) Temp. class: <input type="checkbox"/> T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5 <input type="checkbox"/> T6			
<b>MAIN JUNCTION BOX</b>						
Manufacturer:		Model:		Size:		
				Quantity installed: n.		
(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No			(*) Execution: EEx-__ II __ T __			
<b>ASSOCIATED CABLE GLANDS</b>						
Type:		Material:		Size:		
				Quantity installed: n.		
(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No			(*) Execution: EEx-__ II __ T __			
INSPECTIONS (Ref. to QCP 1670.01)		N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE	
					CONTRACT.	TECHNIP
					OWNER	
<b>A – Installation</b>						
A1.	Layout and mounting correct		<input type="checkbox"/>	<input type="checkbox"/>		
A2.	Cover not damaged		<input type="checkbox"/>	<input type="checkbox"/>		
A3.	Internal wirings connected		<input type="checkbox"/>	<input type="checkbox"/>		
A4.	Labeling check		<input type="checkbox"/>	<input type="checkbox"/>		
A5.	Grounding connections done		<input type="checkbox"/>	<input type="checkbox"/>		
<b>B - Tests and final inspection</b>						
B1.	(*) Apparatus is appropriate to area classification		<input type="checkbox"/>	<input type="checkbox"/>		
B2.	(*) Apparatus group and temperature class is correct		<input type="checkbox"/>	<input type="checkbox"/>		
B3.	(*) Apparatus circuit identification available and correct		<input type="checkbox"/>	<input type="checkbox"/>		
B4.	(*) There are no unauthorized modifications		<input type="checkbox"/>	<input type="checkbox"/>		
B5.	(*) There are no visible unauthorized modifications		<input type="checkbox"/>	<input type="checkbox"/>		
B6.	(*) Bolts and cable entry devices are of the correct type		<input type="checkbox"/>	<input type="checkbox"/>		
B7.	(*) Bolts and cable entry devices are tightened		<input type="checkbox"/>	<input type="checkbox"/>		
B8.	(*) Flange faces are clean and undamaged (Note 1)		<input type="checkbox"/>	<input type="checkbox"/>		
B9.	(*) Flange gap are within max values permitted (Note 1)		<input type="checkbox"/>	<input type="checkbox"/>		
B10.	(*) Main and auxiliary electrical connections are tight		<input type="checkbox"/>	<input type="checkbox"/>		
B11.	(*) Enclosure gaskets condition is satisfactory (Note 2)		<input type="checkbox"/>	<input type="checkbox"/>		
B12.	(*) Enclosure clearance is sufficient (Note 3)		<input type="checkbox"/>	<input type="checkbox"/>		
B13.	(*) Breathing and draining devices satisfactory (Note 3)		<input type="checkbox"/>	<input type="checkbox"/>		
Note 1: EEx-d equipment only. Note 2: Does not apply to EEx-d and EEx-p equipment.						
Note 3: Does not apply to EEx-p equipment.						
Note: A key plan showing the location of the junction boxes shall be attached to this form.						
REMARKS :						
C- Final Doc. Review	<b>INSPECTORS</b>		<b>CONTRACTOR</b>		<b>TECHNIP</b>	
	NAME					
	SIGNATURE					
	DATE					
						<b>OWNER</b>



 		PROJECT:											
		OWNER:											
QUALITY CONTROL FORM		EFR 11G	PROJ. No.:	QCF REV.	SH. 1 OF 1								
<b>CATHODIC PROTECTION SYSTEM CABLES INSTALLATION SUMMARY REPORT</b>			CONTRACTOR:		EFR 11G N° ____								
<b>GENERAL DATA</b>													
Tag:		Location / area:		System / subsystem:									
Date (dd/mm/yy):		Cable insulation		Ref. drawing:									
		<input type="checkbox"/> HMWPE <input type="checkbox"/>											
Conductor section:		Conductor length:											
<table border="1"> <tr><td>1</td><td>2</td></tr> <tr><td>3</td><td>4</td></tr> </table>		1	2	3	4	<table border="1"> <tr><td>1</td><td>2</td></tr> <tr><td>3</td><td>4</td></tr> </table>		1	2	3	4		
1	2												
3	4												
1	2												
3	4												
INSPECTIONS (Ref. to QCP 1670.01)		N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE								
					CONTRACT.    TECHNIP    OWNER								
<b>A – Installation</b>													
A1.	Trench/duct characteristics, location, burial depth and installation check	<input type="checkbox"/>	<input type="checkbox"/>										
A2.	Routing acc. to drawings and check of interference with other buried systems	<input type="checkbox"/>	<input type="checkbox"/>										
A3.	Check if the material is damaged and its conformance to specification, drawings	<input type="checkbox"/>	<input type="checkbox"/>										
A4.	Conductor type, material, size and insulation verified	<input type="checkbox"/>	<input type="checkbox"/>										
A5.	Conductor laid properly and protected where required	<input type="checkbox"/>	<input type="checkbox"/>										
<b>B – Testing</b>													
<b>CATHODIC PROTECTION CABLE TESTING</b>													
Tester manufacturer:		Type:	Calibration date:	Recalibration date:									
Megger manufacturer:		Type:	Calibration date:	Recalibration date:									
Test voltage and time:		KVDC for min		Acceptance criteria:	I. R. > MΩ								
Cable	Cable tag	From point	To point	Continuity	Meggering								
1				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
2				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
3				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
4				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
5				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
6				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
7				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
8				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
9				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
10				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
11				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
12				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
13				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
14				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
15				<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail								
Note: A key plan showing the location of the numbered cables and points shall be attached to this form.													
REMARKS :													
C- Final Doc. Review	<b>INSPECTORS</b>		<b>CONTRACTOR</b>		<b>TECHNIP</b>								
	NAME												
	SIGNATURE												
	DATE												
<b>OWNER</b>													



		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION LIGHTING SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1680-001	<b>Rev. No.</b> 0	Page 1 of 9	

**QUALITY CONTROL PLAN**  
**ELECTRICAL INSTALLATION**  
**LIGHTING SYSTEM**

<b>TYPE OF QUALITY CONTROL REPORT</b>	<b>CERTIFICATION EXTENT</b>
EFR 12A	Lighting System - Local Distribution Panel Installation Summary Report
EFR 12B	Lighting System - Local Distribution Panel Functional Test
EFR 12C	Lighting System - Lighting Main Junction Box Installation Summary Report
EFR 12D	Lighting System - Lighting Fixture Installation Summary Report
EFR 12E	Lighting System - Street Lighting Pole Installation Summary Report
EFR 12F	Lighting System - Lighting Tower Installation Summary Report
EFR 12G	Lighting System - Receptacle Outlet Installation Summary Report
EFR 12H	Lighting System - Level Gauge Lighting Installation Summary Report
EFR 12I	Lighting System - Aircraft Warning Lighting System Installation Summary Report

**REFERENCE DOCUMENTS:**

- 080557C-000-PP-805
  - 080557C-000-JSD-1600-003
  - DRAWINGS
- SITE COORDINATION & COMMUNICATION PROCEDURE.  
SPECIFICATIONS FOR FIELD ELECTRICAL INSTALLATION,  
TESTING, PRE-COMMISSIONING AND COMMISSIONING

**LEGENDA**

- H = HOLD (RFI required - Work stop for inspection)
- W = WITNESS (RFI required)
- WC = 100 % SUPERVISION AND EXAMINATION BY CONTRACTOR.
- P = PREPARATION.
- S = SURVEILLANCE (No RFI)
- R = REVIEW OF REPORTS
- N.A. = NOT APPLICABLE
- A = AUTHORIZATION / APPROVAL
- IFA = ISSUED FOR AUTHORIZATION/APPROVAL
- INFO = FOR INFORMATION
- ! = WARNING (control of document revision status)

REV.	DATE	STATUS	WRITTEN BY	CHECKED BY	APPROVED BY	AUTHOR. BY
0	19.11.2019	ISSUED FOR IMPLEMENTATION	TB	PKP / LA	LA	JMC
<b>DOCUMENT REVISIONS</b>						

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<b>QCP- ELECTRICAL INSTALLATION LIGHTING SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1680-001		<b>Rev. No.</b> 0	Page 2 of 9

**QUALITY CONTROL PLAN**

**ELECTRICAL INSTALLATION  
LIGHTING SYSTEM**

**QUALITY CONTROL ACTIVITIES**

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>A</b>	<b>PRELIMINARY ACTIVITIES</b>				
A1	CHECK OF CONTRACTOR DRAWINGS REVISION STATUS	NA	!	!	
A2	CONTRACTOR TECHNICAL SPECIFICATION AND PROCEDURE	NA	P	R/A	
A3	CONTRACTOR'S METHOD OF STATEMENT (IF REQUIRED)	NA	P	R/A	(1)
<b>B</b>	<b>MATERIALS - BEFORE AND AFTER INSTALLATION</b>				
<b>B1</b>	<b>IDENTIFICATION AND PRESERVATION STATUS</b>	<b>NA</b>	<b>W/C</b>	<b>W/R</b>	
<b>C01</b>	<b>LOCAL DISTRIBUTION PANEL INSTALLATION</b>				
<b>C01-A</b>	<b>Prefabrication of supports</b>				
C01-A1	Supports prefabricated and painted	NA	W/C	W/R	
<b>C01-B</b>	<b>Installation of supports</b>				
C01-B1	Supports installed properly	NA	W/C	W/R	
C01-B2	Installation & layout as per approved drawings	NA	W/C	R	
C01-B3	Cold galvanizing touch-up paint applied	NA	W/C	S	
<b>C01-C</b>	<b>Installation of panel board</b>				
C01-C1	<b>Mounting &amp; location as per drawings</b>	NA	W/C	R	
C01-C2	<b>Alignment and levelling</b>	NA	W/C	S	
C01-C3	<b>Internal wiring meggered and color code &amp; tags checked</b>	NA	W/C	S	
C01-C4	<b>Cables supported properly</b>	NA	W/C	R	
C01-C5	<b>Accessories complete and spare holes plugged</b>	NA	W/C	S	
C01-C6	<b>Breaker ratings &amp; sizes verified</b>	NA	W/C	W/R	
C01-C7	Main and auxiliary electrical connections are tight	NA	W/C	W/R	
C01-C8	There are no unauthorized modifications	NA	W/C	W/R	
C01-C9	There are no visible unauthorized modifications	NA	W/C	W/R	
C01-C10	Bolts and cable entry devices are of the correct type	NA	W/C	W/R	
C01-C11	Bolts and cable entry devices are tightened	NA	W/C	W/R	
C01-C12	Apparatus is appropriate to area classification	NA	W/C	W/R	
C01-C13	Apparatus group and temperature class is correct	NA	W/C	W/R	
C01-C14	Apparatus circuit identification available and correct	NA	W/C	W/R	
C01-C15	Flange faces are clean and undamaged	NA	W/C	W/R	
C01-C16	Flange gap are within max values permitted	NA	W/C	W/R	
C01-C17	Enclosure gaskets condition is satisfactory	NA	W/C	W/R	
C01-C18	Enclosed-break devices undamaged	NA	W/C	W/R	
C01-C19	Hermetically sealed devices undamaged	NA	W/C	W/R	

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		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION LIGHTING SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1680-001		<b>Rev. No.</b> 0	Page 3 of 9

**QUALITY CONTROL PLAN**

**ELECTRICAL INSTALLATION  
LIGHTING SYSTEM**

**QUALITY CONTROL ACTIVITIES**

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C01-C20	Restricted breathing enclosure satisfactory	NA	W/C	W/R	
C01-C21	Fans / enclosure clearance is sufficient	NA	W/C	W/R	
C01-C22	Breathing and draining devices satisfactory	NA	W/C	W/R	
<b>C01-D</b>	<b>Final inspection</b>	<b>EFR 12A</b>	<b>W/C</b>	<b>W/R</b>	
<b>C01-D1</b>	Grounding system	NA	W/C	W/R	
<b>C01-D2</b>	<b>Functional testing done</b>	<b>EFR 12B</b>	<b>W/C</b>	<b>W/R</b>	
<b>C01-D3</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C01-D4</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C01-E</b>	<b>Final documentation review</b>	<b>EFR 12A</b>	<b>P</b>	<b>R</b>	
<b>C02</b>	<b>LIGHTING MAIN JUNCTION BOX INSTALLATION</b>				
<b>C02-A</b>	<b>Prefabrication of supports</b>				
C02-A1	Supports prefabricated and painted	NA	W/C	S	
<b>C02-B</b>	<b>Installation of supports</b>				
C02-B1	Supports installed properly	NA	W/C	R	
C02-B2	Installation & layout as per approved drawings	NA	W/C	R	
<b>C02-C</b>	<b>Installation of junction box</b>				
C02-C1	<b>Mounting &amp; location as per drawings</b>	NA	W/C	R	
C02-C2	<b>Alignment and levelling</b>	NA	W/C	S	
C02-C3	<b>Internal wiring and terminals connected</b>	NA	W/C	W/R	
C02-C4	<b>Cables supported properly</b>	NA	W/C	S	
C02-C5	<b>Accessories complete and spare holes plugged</b>	NA	W/C	W/R	
C02-C6	<b>Nameplate and grounding connections</b>	NA	W/C	W/R	
C02-C7	Main and auxiliary electrical connections are tight	NA	W/C	W/R	
C02-C8	There are no unauthorized modifications	NA	W/C	W/R	
C02-C9	There are no visible unauthorized modifications	NA	W/C	W/R	
C02-C10	Bolts and cable entry devices are of the correct type	NA	W/C	W/R	
C02-C11	Bolts and cable entry devices are tightened	NA	W/C	W/R	
C02-C12	Apparatus is appropriate to area classification	NA	W/C	W/R	
C02-C13	Apparatus group and temperature class is correct	NA	W/C	W/R	
C02-C14	Apparatus circuit identification available and correct	NA	W/C	W/R	
C02-C15	Flange faces are clean and undamaged	NA	W/C	W/R	
C02-C16	Flange gap are within max values permitted	NA	W/C	W/R	
C02-C17	Enclosure gaskets condition is satisfactory	NA	W/C	W/R	
C02-C18	Enclosed-break devices undamaged	NA	W/C	W/R	

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		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION LIGHTING SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1680-001		<b>Rev. No.</b> 0	Page 4 of 9

**QUALITY CONTROL PLAN**

**ELECTRICAL INSTALLATION  
LIGHTING SYSTEM**

**QUALITY CONTROL ACTIVITIES**

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C02-C19	Hermetically sealed devices undamaged	NA	W/C	W/R	
C02-C20	Restricted breathing enclosure satisfactory	NA	W/C	W/R	
C02-C21	Enclosure clearance is sufficient	NA	W/C	W/R	
C02-C22	Breathing and draining devices satisfactory	NA	W/C	W/R	
<b>C02-D</b>	<b>Final inspection</b>	<b>EFR 12C</b>	<b>W/C</b>	<b>W/R</b>	
<b>C02-D1</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C02-D2</b>	<b>As-built marked up copy updated and available</b>	NA	W/C	W/R	
<b>C02-D3</b>	<b>Cold galvanizing touch-up paint applied</b>	NA	W/C	W/R	
<b>C02-E</b>	<b>Final documentation review</b>	<b>EFR 12C</b>	<b>P</b>	<b>R</b>	
<b>C03</b>	<b>LIGHTING FIXTURE INSTALLATION</b>				
<b>C03-A</b>	<b>Installation of supports</b>				
C03-A1	Supports prefabricated and painted	NA	W/C	S	
<b>C03-B</b>	<b>Installation of fixture and associated junction box</b>				
<b>C03-B1</b>	<b>Mounting &amp; location as per drawings</b>	<b>NA</b>	<b>W/C</b>	<b>R</b>	
<b>C03-B2</b>	<b>Height, alignment and levelling</b>	<b>NA</b>	<b>W/C</b>	<b>W/R</b>	
C03-B3	Maintenance accessibility	NA	W/C	W/R	
<b>C03-B4</b>	<b>No interference to access ways</b>	<b>NA</b>	<b>W/C</b>	<b>W/R</b>	
<b>C03-B5</b>	<b>Accessories complete and spare holes plugged</b>	<b>NA</b>	<b>W/C</b>	<b>W/R</b>	
<b>C03-B6</b>	<b>Fixture stability</b>	<b>NA</b>	<b>W/C</b>	<b>W/R</b>	
C03-B7	There are no unauthorized modifications	NA	W/C	W/R	
C03-B8	There are no visible unauthorized modifications	NA	W/C	W/R	
C03-B9	Bolts and cable entry devices are of the correct type	NA	W/C	W/R	
C03-B10	Bolts and cable entry devices are tightened	NA	W/C	W/R	
C03-B11	Apparatus is appropriate to area classification	NA	W/C	W/R	
C03-B12	Apparatus group and temperature class is correct	NA	W/C	W/R	
C03-B13	Apparatus circuit identification available and correct	NA	W/C	W/R	
C03-B14	Flange faces are clean and undamaged	NA	W/C	W/R	
C03-B15	Flange gap are within max values permitted	NA	W/C	W/R	
C03-B16	Enclosure gaskets condition is satisfactory	NA	W/C	W/R	
C03-B17	Enclosed-break devices undamaged	NA	W/C	W/R	
C03-B18	Hermetically sealed devices undamaged	NA	W/C	W/R	
C03-B19	Restricted breathing enclosure satisfactory	NA	W/C	W/R	
C03-B20	Enclosure clearance is sufficient	NA	W/C	W/R	
C03-B21	Breathing and draining devices satisfactory	NA	W/C	W/R	

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		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION LIGHTING SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1680-001		<b>Rev. No.</b> 0	Page 5 of 9

**QUALITY CONTROL PLAN**

**ELECTRICAL INSTALLATION  
LIGHTING SYSTEM**

**QUALITY CONTROL ACTIVITIES**

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
<b>C03-C</b>	<b>Cable way and wiring</b>				
C03-C1	Conduit and cable tray installed properly	NA	W/C	W/R	
C03-C2	Wires and cables installation	NA	W/C	W/R	
C03-C3	Fixture wiring, glanding and cabling	NA	W/C	W/R	
C03-C4	Grounding and tagging	NA	W/C	W/R	
<b>C03-D</b>	<b>Final inspection</b>	<b>EFR 12D</b>	<b>W/C</b>	<b>W/R</b>	
<b>C03-D1</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C03-D2</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C03-D3</b>	<b>Cold galvanizing touch-up paint applied</b>	NA	W/C	W/R	
<b>C03-E</b>	<b>Final documentation review</b>	<b>EFR 12D</b>	<b>P</b>	<b>R</b>	
<b>C04</b>	<b>STREET LIGHTING POLE INSTALLATION</b>				
<b>C04-A</b>	<b>Mast installation</b>				
C04-A1	Concrete base / Foundation dimensional check according to drawings	NA	W/C	R	
C04-A2	Anchor bolts size and connection elements completeness checked	NA	W/C	W/R	
C04-A3	Alignment and levelling correct	NA	W/C	W/R	
C04-A4	No splitting or cracking on section splices	NA	W/C	W/R	
C04-A5	Completeness of mechanical and electrical accessories	NA	W/C	W/R	
<b>C04-B</b>	<b>Lamp installation and wiring</b>				
C04-B1	Cable entries clear and grounding connections done	NA	W/C	W/R	
C04-B2	Fixture installed and wired properly	NA	W/C	W/R	
<b>C04-C</b>	<b>Final inspection</b>	<b>EFR 12E</b>	<b>W/C</b>	<b>W/R</b>	
<b>C04-C1</b>	<b>Ground clearance</b>	NA	W/C	W/R	
<b>C04-C2</b>	<b>Verticality and luminaire orientation as required</b>	NA	W/C	W/R	
<b>C04-C3</b>	<b>Lighting fixture functionality</b>	NA	W/C	W/R	
<b>C04-C4</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C04-D</b>	<b>Final documentation review</b>	<b>EFR 12E</b>	<b>P</b>	<b>R</b>	
<b>C05</b>	<b>LIGHTING TOWER INSTALLATION</b>				
<b>C05-A</b>	<b>Mast and crown installation</b>				
C05-A1	Concrete base / Foundation dimensional check according to drawings	NA	W/C	R	
C05-A2	Anchor bolts size and connection elements completeness checked	NA	W/C	W/R	
C05-A3	Alignment and levelling correct	NA	W/C	W/R	
C05-A4	No splitting or cracking on section splices	NA	W/C	W/R	
C05-A5	Completeness of mechanical and electrical accessories	NA	W/C	W/R	
C05-A6	Crown and winch installed properly	NA	W/C	W/R	

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		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION LIGHTING SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1680-001		<b>Rev. No.</b> 0	Page 6 of 9

**QUALITY CONTROL PLAN**

**ELECTRICAL INSTALLATION  
LIGHTING SYSTEM**

**QUALITY CONTROL ACTIVITIES**

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C05-A7	Braking system installed properly	NA	W/C	W/R	
<b>C05-B</b>	<b>Lamp installation and wiring</b>				
C05-B1	Cable entries clear and grounding connections done	NA	W/C	W/R	
C05-B2	Fixture installed and wired properly	NA	W/C	W/R	
<b>C05-C</b>	<b>Final inspection</b>	<b>EFR 12F</b>	<b>W/C</b>	<b>W/R</b>	
<b>C05-C1</b>	<b>Ground clearance</b>	NA	W/C	W/R	
<b>C05-C2</b>	<b>Verticality and luminaire orientation as required</b>	NA	W/C	W/R	
<b>C05-C3</b>	<b>Lighting fixture functionality</b>	NA	W/C	W/R	
<b>C05-C4</b>	<b>Winch operation and braking system checked</b>	NA	W/C	W/R	
<b>C05-C5</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C05-D</b>	<b>Final documentation review</b>	<b>EFR 12F</b>	<b>P</b>	<b>R</b>	
<b>C06</b>	<b>RECEPTACLE OUTLET INSTALLATION</b>				
<b>C06-A</b>	<b>Installation of supports</b>				
C06-A1	Supports prefabricated and painted	NA	W/C	S	
C06-A2	Cold galvanizing touch-up paint applied	NA	W/C	W/R	
<b>C06-B</b>	<b>Installation of receptacle</b>				
C06-B1	<b>Mounting &amp; location as per drawings</b>	NA	W/C	R	
C06-B2	<b>Height, alignment and levelling</b>	NA	W/C	W/R	
C06-B3	Maintenance accessibility	NA	W/C	W/R	
C06-B4	<b>No interference to access ways</b>	NA	W/C	W/R	
C06-B5	<b>Accessories complete and spare holes plugged</b>	NA	W/C	W/R	
C06-B6	<b>Outlet stability</b>	NA	W/C	W/R	
C06-B7	There are no unauthorized modifications	NA	W/C	W/R	
C06-B8	There are no visible unauthorized modifications	NA	W/C	W/R	
C06-B9	Bolts and cable entry devices are of the correct type	NA	W/C	W/R	
C06-B10	Bolts and cable entry devices are tightened	NA	W/C	W/R	
C06-B11	Apparatus is appropriate to area classification	NA	W/C	W/R	
C06-B12	Apparatus group and temperature class is correct	NA	W/C	W/R	
C06-B13	Apparatus circuit identification available and correct	NA	W/C	W/R	
C06-B14	Flange faces are clean and undamaged	NA	W/C	W/R	
C06-B15	Flange gap are within max values permitted	NA	W/C	W/R	
C06-B16	Enclosure gaskets condition is satisfactory	NA	W/C	W/R	
C06-B17	Enclosed-break devices undamaged	NA	W/C	W/R	
C06-B18	Hermetically sealed devices undamaged	NA	W/C	W/R	
C06-B19	Restricted breathing enclosure satisfactory	NA	W/C	W/R	

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		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>	
<b>QCP- ELECTRICAL INSTALLATION LIGHTING SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1680-001	<b>Rev. No.</b> 0	Page 7 of 9

**QUALITY CONTROL PLAN**

**ELECTRICAL INSTALLATION  
LIGHTING SYSTEM**

**QUALITY CONTROL ACTIVITIES**

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C06-B20	Enclosure clearance is sufficient	NA	W/C	W/R	
C06-B21	Breathing and draining devices satisfactory	NA	W/C	W/R	
<b>C06-C</b>	<b>Cable way and wiring</b>				
C06-C1	Conduit and cable tray installed properly	NA	W/C	W/R	
C06-C2	Wires and cables installation	NA	W/C	W/R	
C06-C3	Outlet wiring, glanding and cabling	NA	W/C	W/R	
C06-C4	Grounding and tagging	NA	W/C	W/R	
<b>C06-D</b>	<b>Final inspection</b>	<b>EFR 12G</b>	<b>W/C</b>	<b>W/R</b>	
<b>C06-D1</b>	<b>Disconnect switch operation</b>	NA	W/C	W/R	
<b>C06-D2</b>	<b>Plug insertion and interlock</b>	NA	W/C	W/R	
<b>C06-D3</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C06-D4</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C06-E</b>	<b>Final documentation review</b>	<b>EFR 12G</b>	<b>P</b>	<b>R</b>	
<b>C07</b>	<b>LEVEL GAUGE LIGHTING INSTALLATION</b>				
<b>C07-A</b>	<b>Installation</b>				
C07-A1	<b>Mounting &amp; location as per drawings</b>	NA	W/C	R	
C07-A2	<b>Height, alignment and levelling</b>	NA	W/C	W/R	
C07-A3	Maintenance accessibility	NA	W/C	W/R	
C07-A4	<b>No interference to access ways</b>	NA	W/C	W/R	
C07-A5	<b>Accessories complete and spare holes plugged</b>	NA	W/C	W/R	
C07-A6	<b>Illuminator stability</b>	NA	W/C	W/R	
C07-A7	There are no unauthorized modifications	NA	W/C	W/R	
C07-A8	There are no visible unauthorized modifications	NA	W/C	W/R	
C07-A9	Bolts and cable entry devices are of the correct type	NA	W/C	W/R	
C07-A10	Bolts and cable entry devices are tightened	NA	W/C	W/R	
C07-A11	Apparatus is appropriate to area classification	NA	W/C	W/R	
C07-A12	Apparatus group and temperature class is correct	NA	W/C	W/R	
C07-A13	Apparatus circuit identification available and correct	NA	W/C	W/R	
C07-A14	Flange faces are clean and undamaged	NA	W/C	W/R	
C07-A15	Flange gap are within max values permitted	NA	W/C	W/R	
C07-A16	Enclosure gaskets condition is satisfactory	NA	W/C	W/R	
C07-A17	Enclosed-break devices undamaged	NA	W/C	W/R	
C07-A18	Hermetically sealed devices undamaged	NA	W/C	W/R	
C07-A19	Restricted breathing enclosure satisfactory	NA	W/C	W/R	

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		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>	
<b>QCP- ELECTRICAL INSTALLATION LIGHTING SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1680-001	<b>Rev. No.</b> 0	Page 8 of 9

**QUALITY CONTROL PLAN**

**ELECTRICAL INSTALLATION  
LIGHTING SYSTEM**

**QUALITY CONTROL ACTIVITIES**

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C07-A20	Enclosure clearance is sufficient	NA	W/C	W/R	
C07-A21	Breathing and draining devices satisfactory	NA	W/C	W/R	
<b>C07-B</b>	<b>Cable way and wiring</b>				
C07-B1	Conduit and cable tray installed properly	NA	W/C	W/R	
C07-B2	Wires and cables installation	NA	W/C	W/R	
C07-B3	Wiring, glanding and cabling	NA	W/C	W/R	
C07-B4	Grounding and tagging	NA	W/C	W/R	
<b>C07-C</b>	<b>Final inspection</b>	<b>EFR 12H</b>	<b>W/C</b>	<b>W/R</b>	
<b>C07-C1</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C07-C2</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C07-D</b>	<b>Final documentation review</b>	<b>EFR 12H</b>	<b>P</b>	<b>R</b>	
<b>C08</b>	<b>AIRCRAFT WARNING LIGHTING SYSTEM INSTALLATION</b>				
<b>C08-A</b>	<b>Installation of supports</b>				
C08-A1	Supports prefabricated and painted	NA	W/C	S	
<b>C08-B</b>	<b>Installation of panels and beacons</b>				
C08-B1	<b>Mounting &amp; location as per drawings</b>	NA	W/C	R	
C08-B2	<b>Height, alignment and levelling</b>	NA	W/C	R	
C08-B3	Maintenance accessibility	NA	W/C	W/R	
C08-B4	<b>No interference to access ways</b>	NA	W/C	W/R	
C08-B5	<b>Accessories complete and spare holes plugged</b>	NA	W/C	W/R	
C08-B6	<b>Fixture stability</b>	NA	W/C	W/R	
C08-B7	There are no unauthorized modifications	NA	W/C	W/R	
C08-B8	There are no visible unauthorized modifications	NA	W/C	W/R	
C08-B9	Bolts and cable entry devices are of the correct type	NA	W/C	W/R	
C08-B10	Bolts and cable entry devices are tightened	NA	W/C	W/R	
C08-B11	Apparatus is appropriate to area classification	NA	W/C	W/R	
C08-B12	Apparatus group and temperature class is correct	NA	W/C	W/R	
C08-B13	Apparatus circuit identification available and correct	NA	W/C	W/R	
C08-B14	Flange faces are clean and undamaged	NA	W/C	W/R	
C08-B15	Flange gap are within max values permitted	NA	W/C	W/R	
C08-B16	Enclosure gaskets condition is satisfactory	NA	W/C	W/R	
C08-B17	Enclosed-break devices undamaged	NA	W/C	W/R	
C08-B18	Hermetically sealed devices undamaged	NA	W/C	W/R	
C08-B19	Restricted breathing enclosure satisfactory	NA	W/C	W/R	

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		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP- ELECTRICAL INSTALLATION LIGHTING SYSTEM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1680-001		<b>Rev. No.</b> 0	Page 9 of 9

**QUALITY CONTROL PLAN**

**ELECTRICAL INSTALLATION  
LIGHTING SYSTEM**

**QUALITY CONTROL ACTIVITIES**

S.NO	CHECK AND INSPECTION ITEM	QUALITY CONTROL REPORT	ACTION		NOTES
			CONTR.	TECHNIP	
C08-B20	Enclosure clearance is sufficient	NA	W/C	W/R	
C08-B21	Breathing and draining devices satisfactory	NA	W/C	W/R	
<b>C08-C</b>	<b>Cable way and wiring</b>				
C08-C1	Conduit and cable tray installed properly	NA	W/C	W/R	
C08-C2	Wires and cables installation	NA	W/C	W/R	
C08-C3	Fixture wiring, glanding and cabling	NA	W/C	W/R	
C08-C4	Grounding and tagging	NA	W/C	W/R	
<b>C08-D</b>	<b>Final inspection</b>	<b>EFR 12I</b>	<b>W/C</b>	<b>W/R</b>	
<b>C08-D1</b>	<b>Final visual inspection</b>	NA	W/C	W/R	
<b>C08-D2</b>	<b>Photocell operation</b>	NA	W/C	W/R	
<b>C08-D3</b>	<b>Functional check and control operation</b>	NA	W/C	W/R	
<b>C08-D4</b>	<b>As-built marked up copy updated and available</b>	NA	P	R	
<b>C08-D5</b>	<b>Cold galvanizing touch-up paint applied</b>	NA	W/C	W/R	
<b>C08-E</b>	<b>Final documentation review</b>	<b>EFR 12I</b>	<b>P</b>	<b>R</b>	

**NOTES:**

- (1) A copy of the document will be delivered to Owner for information.

**GENERAL NOTES**

- 1 THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THEJOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY TECHNIP AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF TECHNIP HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.
- 2 CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT TO TECHNIP/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.



PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 12A

PROJ. No.:

QCF REV.

SH. 1 OF 2

**LIGHTING SYSTEM  
LOCAL DISTRIBUTION PANEL INSTALLATION  
SUMMARY REPORT**

CONTRACTOR:

EFR 12A N° \_\_\_\_

**GENERAL DATA**

Location / area:	System / subsystem:	Date (dd/mm/yy):
Is the equipment installed in hazardous area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", the fields marked with an (*) must be filled in)		
(*) Area classification acc. to IEC 60079-10-1 and IEC 60079-10-2: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> Mixed		
(*) Gas group: <input type="checkbox"/> IIA <input type="checkbox"/> IIB <input type="checkbox"/> IIC		(*) Temp. class: <input type="checkbox"/> T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5 <input type="checkbox"/> T6

**EQUIPMENT IDENTIFICATION**

Tag number:	Rated voltage: V	30 mA branch protection: <input type="checkbox"/> Yes <input type="checkbox"/> No
Manufacturer:	Main breaker rating: A	Feeding cable tag:
Serial number:	Number of branch breakers:	Ref. drawing:
(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No		(*) Execution: EEx-__ II __ T__

**ASSOCIATED CABLE GLANDS**

Type:	Material:	Size:	Quantity installed: n.
(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No		(*) Execution: EEx-__ II __ T__	

INSPECTIONS (Ref. to QCP 1680.01)		N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
					CONTRACTOR	TECHNIP	OWNER
<b>A - Prefabrication of supports</b>							
A1.	Supports prefabricated and painted	<input type="checkbox"/>	<input type="checkbox"/>				
<b>B - Installation of supports</b>							
B1.	Supports installed properly	<input type="checkbox"/>	<input type="checkbox"/>				
B2.	Installation & layout as per approved drawings	<input type="checkbox"/>	<input type="checkbox"/>				
B3.	Cold galvanizing touch-up paint applied	<input type="checkbox"/>	<input type="checkbox"/>				
<b>C - Installation of panelboard</b>							
C1.	Mounting & location as per drawings	<input type="checkbox"/>	<input type="checkbox"/>				
C2.	Alignment and levelling	<input type="checkbox"/>	<input type="checkbox"/>				
C3.	Internal wiring meggered and color code & tags checked	<input type="checkbox"/>	<input type="checkbox"/>				
C4.	Cables supported properly	<input type="checkbox"/>	<input type="checkbox"/>				
C5.	Accessories complete and spare holes plugged	<input type="checkbox"/>	<input type="checkbox"/>				
C6.	Breaker ratings & sizes verified	<input type="checkbox"/>	<input type="checkbox"/>				
C7.	Main and auxiliary electrical connections are tight	<input type="checkbox"/>	<input type="checkbox"/>				
C8.	There are no unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>				
C9.	There are no visible unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>				
C10.	Bolts and cable entry devices are of the correct type	<input type="checkbox"/>	<input type="checkbox"/>				
C11.	Bolts and cable entry devices are tightened	<input type="checkbox"/>	<input type="checkbox"/>				
C12.	(*) Apparatus is appropriate to area classification	<input type="checkbox"/>	<input type="checkbox"/>				
C13.	(*) Apparatus group and temperature class is correct	<input type="checkbox"/>	<input type="checkbox"/>				
C14.	(*) Apparatus circuit identification available and correct	<input type="checkbox"/>	<input type="checkbox"/>				
C15.	(*) Flange faces are clean and undamaged (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>				
C16.	(*) Flange gap are within max values permitted (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>				



PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 12A

PROJ. No.:

QCF REV.

SH. 2 OF 2

**LIGHTING SYSTEM  
LOCAL DISTRIBUTION PANEL INSTALLATION  
SUMMARY REPORT**

CONTRACTOR:

EFR 12A N° \_\_\_\_\_

INSPECTIONS (Ref. to QCP 1680.01)		N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
					CONTRACTOR	TECHNIP	OWNER
C17.	(*) Enclosure gaskets condition is satisfactory (Note 2)	<input type="checkbox"/>	<input type="checkbox"/>	EFR 12B (**)			
C18.	(*) Enclosed-break devices undamaged (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>				
C19.	(*) Hermetically sealed devices undamaged (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>				
C20.	(*) Restricted breathing enclosure satisfactory (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>				
C21.	(*) Fans / enclosure clearance is sufficient (Note 4)	<input type="checkbox"/>	<input type="checkbox"/>				
C22.	(*) Breathing and draining devices satisfactory (Note 4)	<input type="checkbox"/>	<input type="checkbox"/>				
<b>D - Final inspection</b>							
D1.	Grounding system	<input type="checkbox"/>	<input type="checkbox"/>				
D2.	Functional testing done	<input type="checkbox"/>	<input type="checkbox"/>				
D3.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>				
D4.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>				
Fault loop impedance (TN sys.) _____ Ω		Earthing resistance (IT sys.) _____ MΩ					

Notes: A key plan showing the location of the panelboard shall be attached to this form.

(\*\*) THE QC REPORT N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES :

EFR 12B N° \_\_\_\_\_

Note 1: EEx-d equipment only.

Note 2: Does not apply to EEx-d and EEx-p equipment.

Note 3: For EEx-n equipment only.

Note 4: Does not apply to EEx-p equipment.

REMARKS :

E- Final Doc. Review	INSPECTORS	CONTRACTOR	TECHNIP	OWNER
	NAME			
	SIGNATURE			
	DATE			



PROJECT:

OWNER:

QUALITY CONTROL FORM

**EFR 12B**

PROJ. No.:

QCF REV.

SH. 1 OF 1

**LIGHTING SYSTEM  
LOCAL DISTRIBUTION PANEL FUNCTIONAL TEST**

CONTRACTOR:

**EFR 12B N°** \_\_\_\_\_

**GENERAL DATA**

Location / area: \_\_\_\_\_ System / subsystem: \_\_\_\_\_ Date (dd/mm/yy): \_\_\_\_\_  
 Is the equipment installed in hazardous area?  Yes  No  
 (\*) Area classification acc. to IEC 60079-10-1 and IEC 60079-10-2:  1  2  21  22  Mixed  
 (\*) Gas group:  IIA  IIB  IIC (\*) Temp. class:  T1  T2  T3  T4  T5  T6

**EQUIPMENT IDENTIFICATION**

**Tag number:** \_\_\_\_\_ **Rated voltage:** \_\_\_\_\_ V **30 mA branch protection:**  Yes  No  
**Manufacturer:** \_\_\_\_\_ **Main breaker rating:** \_\_\_\_\_ A **Feeding cable tag:** \_\_\_\_\_  
**Serial number:** \_\_\_\_\_ **Number of branch breakers:** \_\_\_\_\_ **Ref. drawing:** \_\_\_\_\_

**TESTING**

Multimeter manuf: \_\_\_\_\_ Type: \_\_\_\_\_ Calibration date: \_\_\_\_\_ Recalibration date: \_\_\_\_\_

**MAIN BREAKER OPERATION**

#	Tag	Open		Close		Continuity		Aux. contacts			30 mA device op.			
		Pass	Fail	Pass	Fail	Pass	Fail	P	F	NA	P	F	NA	
		<input type="checkbox"/>												

**BRANCH BREAKERS OPERATION**

#	Circuit	Open		Close		Continuity		Aux. contacts			30 mA device op.			
		Pass	Fail	Pass	Fail	Pass	Fail	P	F	NA	P	F	NA	
1		<input type="checkbox"/>												
2		<input type="checkbox"/>												
3		<input type="checkbox"/>												
4		<input type="checkbox"/>												
5		<input type="checkbox"/>												
6		<input type="checkbox"/>												
7		<input type="checkbox"/>												
8		<input type="checkbox"/>												
9		<input type="checkbox"/>												
10		<input type="checkbox"/>												
11		<input type="checkbox"/>												
12		<input type="checkbox"/>												
13		<input type="checkbox"/>												
14		<input type="checkbox"/>												
15		<input type="checkbox"/>												
16		<input type="checkbox"/>												
17		<input type="checkbox"/>												
18		<input type="checkbox"/>												

**CONTROL OPERATION**

Manual mode  Pass  Fail  Auto (photocell) mode  Pass  Fail

**CONTROL UNIT SETTING**

Lux On			Lux Off			Time On			Time Off		
Set	Actual	Pass	Set	Actual	Pass	Set	Actual	Pass	Set	Actual	Pass
		<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>

REMARKS :

<i>INSPECTORS</i>	<i>CONTRACTOR</i>	<i>TECHNIP</i>	<i>OWNER</i>
NAME			
SIGNATURE			
DATE			



PROJECT:

OWNER:

QUALITY CONTROL FORM

**EFR 12C**

PROJ. No.:

QCF REV.

SH. 1 OF 2

**LIGHTING SYSTEM  
LIGHTING MAIN JUNCTION BOX INSTALLATION  
SUMMARY REPORT**

CONTRACTOR:

**EFR 12C N° \_\_\_\_\_**

**GENERAL DATA**

Location / area:	System / subsystem:	Date (dd/mm/yy):
Is the equipment installed in hazardous area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", the fields marked with an (*) must be filled in)		
(*) Area classification acc. to IEC 60079-10-1 and IEC 60079-10-2: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> Mixed		
(*) Gas group: <input type="checkbox"/> IIA <input type="checkbox"/> IIB <input type="checkbox"/> IIC		(*) Temp. class: <input type="checkbox"/> T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5 <input type="checkbox"/> T6

**MAIN JUNCTION BOX**

Manufacturer:	Model:	Size:	Quantity installed: n.
Tag N° :	(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No	(*) Execution: EEx-__ II__ T__	

**ASSOCIATED CABLE GLANDS**

Type:	Material:	Size:	Quantity installed: n.
	(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No	(*) Execution: EEx-__ II__ T__	

INSPECTIONS (Ref. to QCP 1680.01)	N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
				CONTRACTOR	TECHNIP	OWNER

A - Prefabrication of supports						
A1.	Supports prefabricated and painted	<input type="checkbox"/>	<input type="checkbox"/>			
B - Installation of supports						
B1.	Supports installed properly	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Installation & layout as per approved drawings	<input type="checkbox"/>	<input type="checkbox"/>			
C - Installation of junction box						
C1.	Mounting & location as per drawings	<input type="checkbox"/>	<input type="checkbox"/>			
C2.	Alignment and levelling	<input type="checkbox"/>	<input type="checkbox"/>			
C3.	Internal wiring and terminals connected	<input type="checkbox"/>	<input type="checkbox"/>			
C4.	Cables supported properly	<input type="checkbox"/>	<input type="checkbox"/>			
C5.	Accessories complete and spare holes plugged	<input type="checkbox"/>	<input type="checkbox"/>			
C6.	Nameplate and grounding connections	<input type="checkbox"/>	<input type="checkbox"/>			
C7.	Main and auxiliary electrical connections are tight	<input type="checkbox"/>	<input type="checkbox"/>			
C8.	There are no unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>			
C9.	There are no visible unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>			
C10.	Bolts and cable entry devices are of the correct type	<input type="checkbox"/>	<input type="checkbox"/>			
C11.	Bolts and cable entry devices are tightened	<input type="checkbox"/>	<input type="checkbox"/>			
C12.	(*) Apparatus is appropriate to area classification	<input type="checkbox"/>	<input type="checkbox"/>			
C13.	(*) Apparatus group and temperature class is correct	<input type="checkbox"/>	<input type="checkbox"/>			
C14.	(*) Apparatus circuit identification available and correct	<input type="checkbox"/>	<input type="checkbox"/>			
C15.	(*) Flange faces are clean and undamaged (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>			
C16.	(*) Flange gap are within max values permitted (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>			
C17.	(*) Enclosure gaskets condition is satisfactory (Note 2)	<input type="checkbox"/>	<input type="checkbox"/>			
C18.	(*) Enclosed-break devices undamaged (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>			





PROJECT:

OWNER:

QUALITY CONTROL FORM

**EFR 12D**

PROJ. No.:

QCF REV.

SH. 1 OF 2

**LIGHTING SYSTEM  
LIGHTING FIXTURE INSTALLATION  
SUMMARY REPORT**

CONTRACTOR:

**EFR 12D N° \_\_\_\_**

**GENERAL DATA**

Tag:	Location / area:	System / subsystem:	Date (dd/mm/yy):
Is the equipment installed in hazardous area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", the fields marked with an (*) must be filled in)			
(*) Area classification acc. to IEC 60079-10-1 and IEC 60079-10-2: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> Mixed			
(*) Gas group: <input type="checkbox"/> IIA <input type="checkbox"/> IIB <input type="checkbox"/> IIC		(*) Temp. class: <input type="checkbox"/> T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5 <input type="checkbox"/> T6	

**EQUIPMENT IDENTIFICATION**

Fixture type:	<input type="checkbox"/> Fluorescent	<input type="checkbox"/> HPS	<input type="checkbox"/> Incandescent	<input type="checkbox"/> _____	Voltage	V	Power	W
Reference dwg:	Panel / JB tag:		Circuit number:		Progr. n.: from ____ to ____			
Quantity installed:	Pendant	Ceiling	Wall	Stanchion	Total			
	(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No		(*) Execution: EEx-__ II__ T__					

**ASSOCIATED JUNCTION BOXES**

Manufacturer:	Model:	Size:	Quantity installed: n.
	(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No		(*) Execution: EEx-__ II__ T__

**ASSOCIATED CABLE GLANDS**

Type:	Material:	Size:	Quantity installed: n.
	(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No		(*) Execution: EEx-__ II__ T__

INSPECTIONS (Ref. to QCP 1680.01)	N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
				CONTRACTOR	TECHNIP	OWNER

<b>A – Installation of supports</b>						
A1.	Supports installed properly	<input type="checkbox"/>	<input type="checkbox"/>			
<b>B - Installation of fixture and associated junction box</b>						
B1.	Mounting & location as per drawings	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Height, alignment and levelling	<input type="checkbox"/>	<input type="checkbox"/>			
B3.	Maintenance accessibility	<input type="checkbox"/>	<input type="checkbox"/>			
B4.	No interference to access ways	<input type="checkbox"/>	<input type="checkbox"/>			
B5.	Accessories complete and spare holes plugged	<input type="checkbox"/>	<input type="checkbox"/>			
B6.	Fixture stability	<input type="checkbox"/>	<input type="checkbox"/>			
B7.	There are no unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>			
B8.	There are no visible unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>			
B9.	Bolts and cable entry devices are of the correct type	<input type="checkbox"/>	<input type="checkbox"/>			
B10.	Bolts and cable entry devices are tightened	<input type="checkbox"/>	<input type="checkbox"/>			
B11.	(*) Apparatus is appropriate to area classification	<input type="checkbox"/>	<input type="checkbox"/>			
B12.	(*) Apparatus group and temperature class is correct	<input type="checkbox"/>	<input type="checkbox"/>			
B13.	(*) Apparatus circuit identification available and correct	<input type="checkbox"/>	<input type="checkbox"/>			
B14.	(*) Flange faces are clean and undamaged (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>			
B15.	(*) Flange gap are within max values permitted (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>			
B16.	(*) Enclosure gaskets condition is satisfactory (Note 2)	<input type="checkbox"/>	<input type="checkbox"/>			
B17.	(*) Enclosed-break devices undamaged (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>			









PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 12G

PROJ. No.:

QCF REV.

SH. 1 OF 2

**LIGHTING SYSTEM  
RECEPTACLE OUTLET INSTALLATION  
SUMMARY REPORT**

CONTRACTOR:

EFR 12G N° \_\_\_\_

**GENERAL DATA**

Tag:	Location / area:	System / subsystem:	Date (dd/mm/yy):
Is the equipment installed in hazardous area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", the fields marked with an (*) must be filled in)			
(*) Area classification acc. to IEC 60079-10-1 and IEC 60079-10-2: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> Mixed			
(*) Gas group: <input type="checkbox"/> IIA <input type="checkbox"/> IIB <input type="checkbox"/> IIC		(*) Temp. class: <input type="checkbox"/> T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5 <input type="checkbox"/> T6	

**EQUIPMENT IDENTIFICATION**

Outlet type:	<input type="checkbox"/> Single phase	<input type="checkbox"/> Three phase		
Rated voltage:	V	Rated current:	A	Reference drawing:
Panel tag:	Circuit number:	Progr. n.: from ____ to ____	Quantity installed: n.	
	(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No	(*) Execution: EEx-__ II__ T__		

**ASSOCIATED JUNCTION BOXES**

Manufacturer:	Model:	Size:	Quantity installed: n.
	(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No	(*) Execution: EEx-__ II__ T__	

**ASSOCIATED CABLE GLANDS**

Type:	Material:	Size:	Quantity installed: n.
	(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No	(*) Execution: EEx-__ II__ T__	

INSPECTIONS (Ref. to QCP 1680.01)	N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
				CONTRACTOR	TECHNIP	OWNER

**A – Installation of supports**

A1.	Supports installed properly	<input type="checkbox"/>	<input type="checkbox"/>
A2.	Cold galvanizing touch-up paint applied	<input type="checkbox"/>	<input type="checkbox"/>

**B - Installation of receptacle**

B1.	Mounting & location as per drawings	<input type="checkbox"/>	<input type="checkbox"/>
B2.	Height, alignment and levelling	<input type="checkbox"/>	<input type="checkbox"/>
B3.	Maintenance accessibility	<input type="checkbox"/>	<input type="checkbox"/>
B4.	No interference to access ways	<input type="checkbox"/>	<input type="checkbox"/>
B5.	Accessories complete and spare holes plugged	<input type="checkbox"/>	<input type="checkbox"/>
B6.	Outlet stability	<input type="checkbox"/>	<input type="checkbox"/>
B7.	There are no unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>
B8.	There are no visible unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>
B9.	Bolts and cable entry devices are of the correct type	<input type="checkbox"/>	<input type="checkbox"/>
B10.	Bolts and cable entry devices are tightened	<input type="checkbox"/>	<input type="checkbox"/>
B11.	(*) Apparatus is appropriate to area classification	<input type="checkbox"/>	<input type="checkbox"/>
B12.	(*) Apparatus group and temperature class is correct	<input type="checkbox"/>	<input type="checkbox"/>
B13.	(*) Apparatus circuit identification available and correct	<input type="checkbox"/>	<input type="checkbox"/>
B14.	(*) Flange faces are clean and undamaged (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>
B15.	(*) Flange gap are within max values permitted (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>
B16.	(*) Enclosure gaskets condition is satisfactory (Note 2)	<input type="checkbox"/>	<input type="checkbox"/>
B17.	(*) Enclosed-break devices undamaged (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>





PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 12H

PROJ. No.:

QCF REV.

SH. 1 OF 2

**LIGHTING SYSTEM  
LEVEL GAUGE LIGHTING INSTALLATION  
SUMMARY REPORT**

CONTRACTOR:

EFR 12H N° \_\_\_\_

**GENERAL DATA**

Tag:	Location / area:	System / subsystem:	Date (dd/mm/yy):
Is the equipment installed in hazardous area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", the fields marked with an (*) must be filled in)			
(*) Area classification acc. to IEC 60079-10-1 and IEC 60079-10-2: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> Mixed			
(*) Gas group: <input type="checkbox"/> IIA <input type="checkbox"/> IIB <input type="checkbox"/> IIC		(*) Temp. class: <input type="checkbox"/> T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5 <input type="checkbox"/> T6	

**EQUIPMENT IDENTIFICATION**

Fixture type:	<input type="checkbox"/> Fluorescent	<input type="checkbox"/> Incandescent	<input type="checkbox"/> Other _____
Rated voltage:	V	Rated power:	W
Reference drawing:			
Panel tag:	Circuit number:	Progr. n.: from ____ to ____	Quantity installed: n.
	(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No	(*) Execution: EEx-__ II__ T__	

**ASSOCIATED JUNCTION BOXES**

Manufacturer:	Model:	Size:	Quantity installed: n.
	(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No	(*) Execution: EEx-__ II__ T__	

**ASSOCIATED CABLE GLANDS**

Type:	Material:	Size:	Quantity installed: n.
	(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No	(*) Execution: EEx-__ II__ T__	

INSPECTIONS (Ref. to QCP 1680.01)	N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
				CONTRACTOR	TECHNIP	OWNER

**A - Installation**

A1.	Mounting & location as per drawings	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Height, alignment and leveling	<input type="checkbox"/>	<input type="checkbox"/>			
A3.	Maintenance accessibility	<input type="checkbox"/>	<input type="checkbox"/>			
A4.	No interference to access ways	<input type="checkbox"/>	<input type="checkbox"/>			
A5.	Accessories complete and spare holes plugged	<input type="checkbox"/>	<input type="checkbox"/>			
A6.	Illuminator stability	<input type="checkbox"/>	<input type="checkbox"/>			
A7.	There are no unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>			
A8.	There are no visible unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>			
A9.	Bolts and cable entry devices are of the correct type	<input type="checkbox"/>	<input type="checkbox"/>			
A10.	Bolts and cable entry devices are tightened	<input type="checkbox"/>	<input type="checkbox"/>			
A11.	(*) Apparatus is appropriate to area classification	<input type="checkbox"/>	<input type="checkbox"/>			
A12.	(*) Apparatus group and temperature class is correct	<input type="checkbox"/>	<input type="checkbox"/>			
A13.	(*) Apparatus circuit identification available and correct	<input type="checkbox"/>	<input type="checkbox"/>			
A14.	(*) Flange faces are clean and undamaged (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>			
A15.	(*) Flange gap are within max values permitted (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>			
A16.	(*) Enclosure gaskets condition is satisfactory (Note 2)	<input type="checkbox"/>	<input type="checkbox"/>			
A17.	(*) Enclosed-break devices undamaged (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>			
A18.	(*) Hermetically sealed devices undamaged (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>			
A19.	(*) Restricted breathing enclosure satisfactory (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>			
A20.	(*) Enclosure clearance is sufficient (Note 4)	<input type="checkbox"/>	<input type="checkbox"/>			
A21.	(*) Breathing and draining devices satisfactory (Note 4)	<input type="checkbox"/>	<input type="checkbox"/>			





PROJECT:

OWNER:

QUALITY CONTROL FORM

EFR 121

PROJ. No.:

QCF REV.

SH. 1 OF 2

**LIGHTING SYSTEM  
AIRCRAFT WARNING LIGHTING SYSTEM  
INSTALLATION – SUMMARY REPORT**

CONTRACTOR:

EFR 121 N° \_\_\_\_

**GENERAL DATA**

Tag:	Location / area:	System / subsystem:	Date (dd/mm/yy):
Is the equipment installed in hazardous area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", the fields marked with an (*) must be filled in)			
(*) Area classification acc. to IEC 60079-10-1 and IEC 60079-10-2: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> Mixed			
(*) Gas group: <input type="checkbox"/> IIA <input type="checkbox"/> IIB <input type="checkbox"/> IIC		(*) Temp. class: <input type="checkbox"/> T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5 <input type="checkbox"/> T6	

**EQUIPMENT IDENTIFICATION**

Fixture type:	<input type="checkbox"/> Xenon	<input type="checkbox"/> Incandescent	<input type="checkbox"/> Other ____	Intensity:	<input type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low
Rated voltage:	V	Rated power:	W	Reference drawing:			
Panel tag:	Circuit number:	Progr. n.: from ____ to ____		Quantity installed: n.			
(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No		(*) Execution: EEx-__ II__ T__					

**ASSOCIATED JUNCTION BOXES**

Manufacturer:	Model:	Size:	Quantity installed: n.
(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No		(*) Execution: EEx-__ II__ T__	

**ASSOCIATED CABLE GLANDS**

Type:	Material:	Size:	Quantity installed: n.
(*) Ex marking: <input type="checkbox"/> Yes <input type="checkbox"/> No		(*) Execution: EEx-__ II__ T__	

INSPECTIONS (Ref. to QCP 1680.01)	N.A.	ACC.	REPORT / REFERENCE	INSPECTOR SIGNATURE & DATE		
				CONTRACTOR	TECHNIP	OWNER

**A – Installation of supports**

A1.	Supports installed properly	<input type="checkbox"/>	<input type="checkbox"/>
-----	-----------------------------	--------------------------	--------------------------

**B - Installation of panels and beacons**

B1.	Mounting & location as per drawings	<input type="checkbox"/>	<input type="checkbox"/>
B2.	Height, alignment and leveling	<input type="checkbox"/>	<input type="checkbox"/>
B3.	Maintenance accessibility	<input type="checkbox"/>	<input type="checkbox"/>
B4.	No interference to access ways	<input type="checkbox"/>	<input type="checkbox"/>
B5.	Accessories complete and spare holes plugged	<input type="checkbox"/>	<input type="checkbox"/>
B6.	Fixture stability	<input type="checkbox"/>	<input type="checkbox"/>
B7.	There are no unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>
B8.	There are no visible unauthorized modifications	<input type="checkbox"/>	<input type="checkbox"/>
B9.	Bolts and cable entry devices are of the correct type	<input type="checkbox"/>	<input type="checkbox"/>
B10.	Bolts and cable entry devices are tightened	<input type="checkbox"/>	<input type="checkbox"/>
B11.	(*) Apparatus is appropriate to area classification	<input type="checkbox"/>	<input type="checkbox"/>
B12.	(*) Apparatus group and temperature class is correct	<input type="checkbox"/>	<input type="checkbox"/>
B13.	(*) Apparatus circuit identification available and correct	<input type="checkbox"/>	<input type="checkbox"/>
B14.	(*) Flange faces are clean and undamaged (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>
B15.	(*) Flange gap are within max values permitted (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>
B16.	(*) Enclosure gaskets condition is satisfactory (Note 2)	<input type="checkbox"/>	<input type="checkbox"/>
B17.	(*) Enclosed-break devices undamaged (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>



 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – TELECOMMUNICATION SYSTEMS INSTALLATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1570-001	<b>Rev. No.</b> 0	Page 1 of 4

**QUALITY CONTROL PLAN – INSTRUMENTATION & COMMUNICATION SYSTEM INSTALLATION**

**TELECOMMUNICATION SYSTEMS INSTALLATION**

TYPE OF QUALITY CONTROL REPORT	CERTIFICATION EXTENT
ICF-001U	“U” Unpacking
ICF-017A; ICF-038A	“A” Installation
ICF-039A	Final Inspection Report

**REFERENCE DOCUMENTS:**

- 080557C-000-STC-1590-001                      Installation Standards
- 080557C-000-JSS-1590-001                    Job Specification for Instrumentation Installation Works
- 080557C-000-PP-850                            Site Co-ordination

**LEGENDS**

H	=	HOLD (Work Stop for Inspection- RFI required)
W	=	WITNESS (RFI required)
WC	=	100% SUPERVISION AND EXAMINATION BY CONTRACTOR
S	=	SURVEILLANCE (NO RFI)
R	=	REVIEW of QC REPORTS
N/A	=	NOT APPLICABLE
P	=	PREPARATION
A	=	DOCUMENT APPROVAL
IFA	=	ISSUED FOR APPROVAL / AUTHORIZATION
!	=	WARNING (Control of document revision status)
INFO	=	FOR INFORMATION
N.A.	=	NOT ACCEPTED
ACC.	=	ACCEPTED

REV.	DATE	STATUS	WRITTEN BY (name & visa)	CHECKED BY (name & visa)	APPROVED BY (name & visa)	AUTHOR. BY (name & visa)
0	14-10-2019	ISSUED FOR IMPLEMENTATION	 Govindaraj Subramanian- External 2019.10.14 16:45:25 +05'30'	 Sbyamsundar Kanthalurajan 2019.10.18 10:41:42 +05'30'	 Sriram Sankaranarayanan 2019.10.21 16:09:35 +05'30'	 Montchristopher Jesumarian 2019.11.01 13:22:14 +05'30'

**DOCUMENT REVISIONS**

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – TELECOMMUNICATION SYSTEMS INSTALLATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1570-001	<b>Rev. No.</b> 0	Page 2 of 4

## QUALITY CONTROL PLAN

### INSTRUMENTATION AND COMMUNICATION SYSTEM INSTALLATION

### TELECOMMUNICATION SYSTEMS INSTALLATION

#### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
<b>A</b>	<b>PRELIMINARY ACTIVITIES</b>				
A1	CHECK OF CONTRACTOR DRAWINGS REVISION STATUS	N/A	<b>!</b>	<b>!</b>	
A2	CHECK OF CONTRACTOR TECHNICAL SPECIFICATION AND PROCEDURE	N/A	IFA	A	
A3	CONTRACTOR'S METHOD STATEMENT (IF REQUIRED)	N/A	IFA	A	(1)
A4	AVAILABILITY OF VENDOR INSTALLATION MANUAL, DRAWING AND DOCUMENTATION	N/A	WC	INFO	(1)
A5	REVIEW OF SYSTEMS FAT PUNCH LIST (IF ANY)	By Vendor	WC	R	
<b>B</b>	<b>UNPACKING</b>				
B1	MATERIAL IDENTIFICATION AND CONSERVATION STATUS (FOR BOTH LOOSE AND PREASSEMBLED MATERIALS) UNPACKING VISUAL INSPECTION	ICF-001U	WC	W/R	
<b>C</b>	<b>INSTALLATION</b>				
C1	<b>TELECOMMUNICATION SYSTEMS INSTALLATION IN CONTROL ROOM</b>				
C1.1A	CCTV Installation	ICF-017A	WC	W/R	
C1.1B	CCTV Connection & wiring	ICF-017A	WC	W/R	
C1.1C	CCTV Check	ICF-017A	WC	W/R	
C1.2A	Intercom/Public Address Installation	ICF-017A	WC	W/R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – TELECOMMUNICATION SYSTEMS INSTALLATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1570-001	<b>Rev. No.</b> 0	Page 3 of 4

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C1.2B	Intercom/Public Address Connection & wiring	ICF-017A	WC	W/R	
C1.2C	Intercom/Public Address Check	ICF-017A	WC	W/R	
C1.3A	Telephone/Data Network Installation	ICF-017A	WC	W/R	
C1.3B	Telephone/Data Network Connection & wiring	ICF-017A	WC	W/R	
C1.3C	Telephone/Data Network Check	ICF-017A	WC	W/R	
C1.4A	Final inspection	ICF-017A	WC	W/R	
C1.5A	Final Documentation Review	ICF-017A	P	R	
C1.5B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C2	<b>TELECOMMUNICATION SYSTEMS INSTALLATION IN SATELLITE RACK ROOM</b>				
C2.1A	CCTV Installation	ICF-017A	WC	W/R	
C2.1B	CCTV Connection & wiring	ICF-017A	WC	W/R	
C2.1C	CCTV Check	ICF-017A	WC	W/R	
C2.2A	Intercom/Public Address Installation	ICF-017A	WC	W/R	
C2.2B	Intercom/Public Address Connection & wiring	ICF-017A	WC	W/R	
C2.2C	Intercom/Public Address Check	ICF-017A	WC	W/R	
C2.3A	Telephone/Data Network Installation	ICF-017A	WC	W/R	
C2.3B	Telephone/Data Network Connection & wiring	ICF-017A	WC	W/R	
C2.3C	Telephone/Data Network Check	ICF-017A	WC	W/R	
C2.4A	Final inspection	ICF-017A	WC	W/R	
C2.5A	Final Documentation Review	ICF-017A	P	R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – TELECOMMUNICATION SYSTEMS INSTALLATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1570-001	<b>Rev. No.</b> 0	Page 4 of 4

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C2.5B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C3	<b>FIELD INSTALLATION OF COMMUNICATION APPARATUSES</b>				
C3.1A	CCTV Installation	ICF-017A	WC	W/R	
C3.1B	CCTV Connection & wiring	ICF-017A	WC	W/R	
C3.1C	CCTV Check	ICF-017A	WC	W/R	
C3.2A	Intercom/Public Address Installation	ICF-017A	WC	W/R	
C3.2B	Intercom/Public Address Connection & wiring	ICF-017A	WC	W/R	
C3.2C	Intercom/Public Address Check	ICF-017A	WC	W/R	
C3.3A	Telephone / Field Call Stations / Data Network Installation	ICF-017A	WC	W/R	
C3.3B	Telephone / Field Call Stations / Data Network Connection & wiring	ICF-017A	WC	W/R	
C3.3C	Telephone / Field Call Stations / Data Network Check	ICF-017A	WC	W/R	
C3.4A	Final inspection	ICF-017A	WC	W/R	
C3.5A	Final Documentation Review	ICF-017A	P	R	
C3.5B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)

## GENERAL NOTES

1 THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THE JOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY TECHNIP AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN- CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF TECHNIP HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.

2 CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT TO TECHNIP/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.

**NOTES:** (1) A COPY OF THE DOCUMENT WILL BE DELIVERED TO COMPANY FOR INFORMATION

(2) TO BE FILED AS PART OF LOOP CHECK FOLDERS



 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
QUALITY CONTROL FORM		ICF 017A		<b>CLIENT</b>		
				<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>COMMUNICATION SYSTEM CCTV SYSTEM, INTERCOM/PUBLIC ADDRESS SYSTEM AND TELEPHONE &amp; DATA NETWORK INSTALLATION SUMMARY REPORT</b>		PROJ. No. 080557C001		REV. 0	SH. _1_ OF _3_	
		CONTRACTOR:			ICF 017A N° _____	
<b>GENERAL DATA</b>						
Tag / Identification:		Ref. Drawing & rev:		MR / P.O. No.:		
TYPE:		Location:				
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1570.001)		N.A.	ACC.	Report / Reference	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
					CONTR.	TECHNIP
<b>1A- CCTV Installation</b>						
A1.	Internal components identification & labelling	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Support installation	<input type="checkbox"/>	<input type="checkbox"/>			
A3.	Equipment layout alignment & fixing (in Control Room)	<input type="checkbox"/>	<input type="checkbox"/>			
A4.	Operator console / monitor installation	<input type="checkbox"/>	<input type="checkbox"/>			
A5.	Camera / enclosure / PTZ installation	<input type="checkbox"/>	<input type="checkbox"/>			
A6.	Camera washer and wiper installation	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1B – CCTV Connection &amp; wiring</b>						
B1.	Internal wiring done	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Cable identification and segregation	<input type="checkbox"/>	<input type="checkbox"/>			
B3.	Cable fastening	<input type="checkbox"/>	<input type="checkbox"/>			
B4.	Each cable in cable gland and shrouds installed on cable glands	<input type="checkbox"/>	<input type="checkbox"/>			
B5.	Unused cable entrance to be plugged with certified (as applicable) blanking plug	<input type="checkbox"/>	<input type="checkbox"/>			
B6.	Terminals execution and connection	<input type="checkbox"/>	<input type="checkbox"/>			
B7.	Screen connection	<input type="checkbox"/>	<input type="checkbox"/>			
B8.	Ground connection	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C – CCTV Check</b>						
C1.	Conformity to data sheet, specs and classification	<input type="checkbox"/>	<input type="checkbox"/>			
C2.	Tag and labelling	<input type="checkbox"/>	<input type="checkbox"/>			
C3.	Adequate clearance for PTZ unit movements	<input type="checkbox"/>	<input type="checkbox"/>			
C4.	Monitor orientation	<input type="checkbox"/>	<input type="checkbox"/>			
C5.	Ventilation and air flow (inside cabinet)	<input type="checkbox"/>	<input type="checkbox"/>			
C6.	Measure chassis earth value from equipment to main earth point (for cabinet)	<input type="checkbox"/>	<input type="checkbox"/>			
C7.	Measure telecom earth value from equipment to main earth point (for cabinet)	<input type="checkbox"/>	<input type="checkbox"/>			
C8.	Telecom earth insulation from chassis earth (no earth loops) (for cabinet)	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2A- Intercom/Public Address Installation</b>						
A1.	Internal components identification & labeling	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Support installation	<input type="checkbox"/>	<input type="checkbox"/>			
A3.	Equipment layout alignment & fixing (in Control Room)	<input type="checkbox"/>	<input type="checkbox"/>			
A4.	Installation of operator console / access panel	<input type="checkbox"/>	<input type="checkbox"/>			
A5.	Installation of indoor flashing beacon	<input type="checkbox"/>	<input type="checkbox"/>			
A6.	Installation of outdoor flashing beacon	<input type="checkbox"/>	<input type="checkbox"/>			
A7.	Installation of indoor loudspeaker / intercom set	<input type="checkbox"/>	<input type="checkbox"/>			
A8.	Installation of outdoor loudspeaker / intercom set	<input type="checkbox"/>	<input type="checkbox"/>			

 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
<b>QUALITY CONTROL FORM</b>		<b>ICF 017A</b>		<b>CLIENT</b>	
				<b>INDIAN OIL CORPORATION LIMITED</b>	
<b>COMMUNICATION SYSTEM CCTV SYSTEM, INTERCOM/PUBLIC ADDRESS SYSTEM AND TELEPHONE &amp; DATA NETWORK INSTALLATION SUMMARY REPORT</b>			PROJ. No. 080557C001		REV. 0
			CONTRACTOR:		SH. _2_ OF _3_
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1570.001)			<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>
				<b>CONTR.</b>	
				<b>TECHNIP</b>	
A9.	Installation of outdoor acoustic booth	<input type="checkbox"/>	<input type="checkbox"/>		
A10.	Installation of outdoor local amplifier with enclosure	<input type="checkbox"/>	<input type="checkbox"/>		
<b>2B – Intercom/Public Address Connection &amp; wiring</b>					
B1.	Internal wiring done	<input type="checkbox"/>	<input type="checkbox"/>		
B2.	Cable identification and segregation	<input type="checkbox"/>	<input type="checkbox"/>		
B3.	Cable fastening	<input type="checkbox"/>	<input type="checkbox"/>		
B4.	Each cable in cable gland and shrouds installed on cable glands	<input type="checkbox"/>	<input type="checkbox"/>		
B5.	Unused cable entrance to be plugged with certified (as applicable) blanking plug	<input type="checkbox"/>	<input type="checkbox"/>		
B6.	Terminals execution and connection	<input type="checkbox"/>	<input type="checkbox"/>		
B7.	Screen connection	<input type="checkbox"/>	<input type="checkbox"/>		
B8.	Ground connection	<input type="checkbox"/>	<input type="checkbox"/>		
<b>2C – Intercom/Public Address Check</b>					
C1.	Conformity to data sheet, specs and classification	<input type="checkbox"/>	<input type="checkbox"/>		
C2.	Tag and labelling	<input type="checkbox"/>	<input type="checkbox"/>		
C3.	Direction of loudspeaker	<input type="checkbox"/>	<input type="checkbox"/>		
C4.	Audio power tapping of loudspeaker against Coverage Study (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>		
C5.	Installation height of loudspeaker	<input type="checkbox"/>	<input type="checkbox"/>		
C6.	Installation height of intercom set	<input type="checkbox"/>	<input type="checkbox"/>		
C7.	Color of flashing beacon	<input type="checkbox"/>	<input type="checkbox"/>		
C8.	Flashing beacon view unobstructed	<input type="checkbox"/>	<input type="checkbox"/>		
C9.	Ventilation and air flow (inside cabinet)	<input type="checkbox"/>	<input type="checkbox"/>		
C10.	Measure chassis earth value from equipment to main earth point (for cabinet)	<input type="checkbox"/>	<input type="checkbox"/>		
C11.	Measure telecom earth value from equipment to main earth point (for cabinet)	<input type="checkbox"/>	<input type="checkbox"/>		
C12.	Telecom earth insulation from chassis earth (no earth loops) (for cabinet)	<input type="checkbox"/>	<input type="checkbox"/>		
<b>3A- Telephone / Field Call Station / Data Network Installation</b>					
A1.	Internal components identification & labeling	<input type="checkbox"/>	<input type="checkbox"/>		
A2.	Support installation	<input type="checkbox"/>	<input type="checkbox"/>		
A3.	Equipment layout alignment & fixing (in Control Room)	<input type="checkbox"/>	<input type="checkbox"/>		
A4.	Outlet installation	<input type="checkbox"/>	<input type="checkbox"/>		
A5.	Installation of indoor telephone set	<input type="checkbox"/>	<input type="checkbox"/>		
A6.	Installation of outdoor telephone set	<input type="checkbox"/>	<input type="checkbox"/>		
A7.	Installation of outdoor acoustic booth	<input type="checkbox"/>	<input type="checkbox"/>		
A8.	Installation of Field Call Station	<input type="checkbox"/>	<input type="checkbox"/>		
A9.	Installation of outdoor additional telephone beacon / sounder (as applicable)	<input type="checkbox"/>	<input type="checkbox"/>		
A10.	Installation of indoor PC / operator console / management console / server (as applicable)	<input type="checkbox"/>	<input type="checkbox"/>		
A11.	Installation of printer / plotter	<input type="checkbox"/>	<input type="checkbox"/>		

 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>			
QUALITY CONTROL FORM		ICF 017A		<b>CLIENT</b>			
				<b>INDIAN OIL CORPORATION LIMITED</b>			
<b>COMMUNICATION SYSTEM CCTV SYSTEM, INTERCOM/PUBLIC ADDRESS SYSTEM AND TELEPHONE &amp; DATA NETWORK INSTALLATION SUMMARY REPORT</b>			PROJ. No. 080557C001		REV. 0		
			SH. <u>  3  </u> OF <u>  3  </u>		CONTRACTOR: ICF 017A N° _____		
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1570.001)			N.A.	ACC.	Report / Reference	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
						CONTR.	TECHNIP
<b>3B – Telephone / Field Call Station / Data Network Connection &amp; wiring</b>							
B1.	Internal wiring done	<input type="checkbox"/>	<input type="checkbox"/>				
B2.	Cable identification and segregation	<input type="checkbox"/>	<input type="checkbox"/>				
B3.	Cable fastening	<input type="checkbox"/>	<input type="checkbox"/>				
B4.	Each cable in cable gland and shrouds installed on cable glands	<input type="checkbox"/>	<input type="checkbox"/>				
B5.	Unused cable entrance to be plugged with certified (as applicable) blanking plug	<input type="checkbox"/>	<input type="checkbox"/>				
B6.	Terminals execution and connection	<input type="checkbox"/>	<input type="checkbox"/>				
B7.	Screen connection	<input type="checkbox"/>	<input type="checkbox"/>				
B8.	Ground connection	<input type="checkbox"/>	<input type="checkbox"/>				
<b>3C – Telephone / Field Call Station / Data Network Check</b>							
C1.	Conformity to data sheet, specs and classification	<input type="checkbox"/>	<input type="checkbox"/>				
C2.	Tag and labelling	<input type="checkbox"/>	<input type="checkbox"/>				
C3.	FO cable correctly terminated and secured	<input type="checkbox"/>	<input type="checkbox"/>				
C4.	Minimum bending radius of FO cable met inside cabinet	<input type="checkbox"/>	<input type="checkbox"/>				
C5.	Additional telephone beacon is visible and additional telephone sounder is audible	<input type="checkbox"/>	<input type="checkbox"/>				
C6.	Bending radius of FO patch cord	<input type="checkbox"/>	<input type="checkbox"/>				
C7.	Ventilation and air flow (inside cabinet)	<input type="checkbox"/>	<input type="checkbox"/>				
C8.	Measure chassis earth value from equipment to main earth point (for cabinet)	<input type="checkbox"/>	<input type="checkbox"/>				
C9.	Measure telecom earth value from equipment to main earth point (for cabinet)	<input type="checkbox"/>	<input type="checkbox"/>				
C10.	Telecom earth insulation from chassis earth (no earth loops) (for cabinet)	<input type="checkbox"/>	<input type="checkbox"/>				
<b>4A - Final inspection</b>							
A1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>				
A2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>				
REMARKS :							
<b>5A - FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>TECHNIP</b>	<b>OWNER</b>			
	NAME						
	SIGNATURE						
	DATE						



 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>					
<b>QUALITY CONTROL FORM</b>		<b>ICF 039A</b>		<b>CLIENT</b>		<b>INDIAN OIL CORPORATION LIMITED</b>			
<b>FIELD INSTRUMENT INSTALLATION FINAL INSPECTION REPORT</b>				PROJ. No. 080557C001		REV. 0	SH. ___1 OF ___1		
				CONTRACTOR:				ICF 039A N° _____	
<b>GENERAL DATA</b>									
<b>Instrument TAG:</b>									
Serial:									
Model:									
MR:									
P.O.:									
P&ID:									
Rev:									
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1570.001)				<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>		
							<b>CONTR.</b>	<b>TECHNIP</b>	
<b>1A- Inspection / Check Point</b>									
A1.	Instrument calibration			<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A2.	Instrument installation			<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A3.	Impulse line pressure test			<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A4.	Instrument signal cable to JB/LP and wiring check			<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A5.	Instrument power cable and wiring check if any			<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A6.	Cable way in trays; in conduits or underground-layout and installation checks			<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A7.	Instrument cable - terminals execution and connection to Instruments and J.Box/L.Panel sides			<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A8.	Instrument air sub headers pressure test			<input type="checkbox"/>	<input type="checkbox"/>	ICF 038A (*)			
A9.	Pneumatic connection and air-supply leak test			<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A10.	Instrument ready for Loop check (relevant JB/LP checked, relevant cable from JB/LP to system checked, relevant system powered up)			<input type="checkbox"/>	<input type="checkbox"/>				
<b>REMARKS : (*) THE QC REPORTS SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES :</b>									
A1. ICF_____ N° _____									
A2. ICF_____ N° _____									
A3. ICF_____ N° _____									
A4. ICF_____ N° _____									
A5. ICF_____ N° _____									
A6. ICF_____ N° _____									
A7. ICF_____ N° _____									
A8. ICF 038A N° _____									
A9. ICF_____ N° _____									
<b>INSPECTORS</b>		<b>CONTRACTOR</b>			<b>TECHNIP</b>		<b>OWNER</b>		
<b>NAME</b>									
<b>SIGNATURE</b>									
<b>DATE</b>									

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – PACKAGE INSTRUMENTATION TEST</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1590-001	<b>Rev. No.</b> 0	Page 1 of 3

**QUALITY CONTROL PLAN – INSTRUMENTATION & COMMUNICATION SYSTEM INSTALLATION**

**PACKAGE INSTRUMENTATION TEST**

TYPE OF QUALITY CONTROL REPORT	CERTIFICATION EXTENT
ICF-016A; ICF-038A	“A” Installation
ICF-039A	Final Inspection Report

**REFERENCE DOCUMENTS:**

- 080557C-000-STC-1590-001                      Installation Standards
- 080557C-000-JSS-1590-001                    Job Specification for Instrumentation Installation Works
- 080557C-000-PP-850                             Site Co-ordination

**LEGENDS**

- H = HOLD (Work Stop for Inspection- RFI required)  
W = WITNESS (RFI required)  
WC = 100% SUPERVISION AND EXAMINATION BY CONTRACTOR  
S = SURVEILLANCE (NO RFI)  
R = REVIEW of QC REPORTS  
N/A = NOT APPLICABLE  
P = PREPARATION  
A = DOCUMENT APPROVAL  
IFA = ISSUED FOR APPROVAL / AUTHORIZATION  
! = WARNING (Control of document revision status)  
INFO = FOR INFORMATION  
N.A. = NOT ACCEPTED  
ACC. = ACCEPTED

			 Written By <small>Govindraj Subramanian-External</small> 2019.10.14 16:46:08 +05'30'	 Checked By <small>Shyamundar Kanchalangan</small> 2019.10.18 10:42:34 +05'30'	 Approved By <small>Srikan Sarikararayanan</small> 2019.10.21 16:11:02 +05'30'	 Authorized By <small>Morischristopher Jesumaran</small> 2019.11.01 13:22:43 +05'30'
0	14-10-2019	ISSUED FOR IMPLEMENTATION	SGR	KRS	SS	JMC
<b>REV.</b>	<b>DATE</b>	<b>STATUS</b>	<b>WRITTEN BY</b> (name & visa)	<b>CHECKED BY</b> (name & visa)	<b>APPROVED BY</b> (name & visa)	<b>AUTHOR. BY</b> (name & visa)

**DOCUMENT REVISIONS**

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		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – PACKAGE INSTRUMENTATION TEST</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1590-001		<b>Rev. No.</b> 0	Page 2 of 3

**QUALITY CONTROL PLAN**  
**INSTRUMENTATION AND COMMUNICATION SYSTEM INSTALLATION**  
**PACKAGE INSTRUMENTATION TEST (1590.00)**

**QUALITY CONTROL ACTIVITIES**

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
<b>A</b>	<b>PRELIMINARY ACTIVITIES</b>				
A1	CHECK OF CONTRACTOR DRAWINGS REVISION STATUS	N/A	!	!	
A2	CHECK OF CONTRACTOR TECHNICAL SPECIFICATION AND PROCEDURE	N/A	IFA	A	
A3	CONTRACTOR'S METHOD STATEMENT (IF REQUIRED)	N/A	IFA	A	(1)
A4	AVAILABILITY OF VENDOR INSTALLATION MANUAL, DRAWING AND DOCUMENTATION	N/A	WC	W/R	(1)
<b>C</b>	<b>INSTALLATION</b>				
C1	<b>DISMOUNTING, CALIBRATION, TESTS AND RE-INSTALLATION OF SKID MOUNTED INSTRUMENTS</b>				
C1.1	<b>Package Equipment Instrumentation</b>				
C1.1A	Instrument Hook-up installation	ICF-016A	WC	W/R	
C1.1B	Cable and wiring	ICF-016A	WC	W/R	
C1.1C	Junction box/Local panel	ICF-016A	WC	W/R	
C1.1D	Range and Calibration Check	ICF-016A	WC	W/R	
C1.1E	Final Inspection	ICF-016A	WC	W/R	
C1.1F	Final Documentation Review	ICF-016A	P	R	
C1.1G	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – PACKAGE INSTRUMENTATION TEST</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1590-001	<b>Rev. No.</b> 0	Page 3 of 3

**NOTES:** (1) A COPY OF THE DOCUMENT WILL BE DELIVERED TO COMPANY FOR INFORMATION  
(2) TO BE FILED AS PART OF LOOP CHECK FOLDERS

## GENERAL NOTES

1 THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THE JOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY TECHNIP AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN- CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF TECHNIP HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.

2 CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT TO TECHNIP/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.

 		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>			
QUALITY CONTROL FORM <b>ICF 016A</b>		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>			
<b>PACKAGE EQUIPMENT INSTRUMENTATION SUMMARY REPORT</b>		PROJ. No. 080557C001	REV. 0	SH. _1_ OF _1_		
		CONTRACTOR:		ICF 016A N° _____		
<b>GENERAL DATA</b>						
TAG:	MR:	P.O.:				
Reference Drawing:		Rev.:				
Prefabrication status:	<input type="checkbox"/> Loose item	<input type="checkbox"/> Skid mounted				
Serial:	Model:	P&ID:				
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1590.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
					<b>CONTR.</b>	<b>TECHNIP</b>
<b>1A - Instrument Hook-up Installation</b>						
A1.	Installation	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Material and Rating	<input type="checkbox"/>	<input type="checkbox"/>			
A3.	Labelling	<input type="checkbox"/>	<input type="checkbox"/>			
A4.	Support	<input type="checkbox"/>	<input type="checkbox"/>			
A5.	Air supply	<input type="checkbox"/>	<input type="checkbox"/>			
A6.	Signal tubing	<input type="checkbox"/>	<input type="checkbox"/>			
A7.	Power supply	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1B - Cables and wiring</b>						
B1.	Conduits / trays installation	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Fastening	<input type="checkbox"/>	<input type="checkbox"/>			
B3.	Trays painted	<input type="checkbox"/>	<input type="checkbox"/>			
B4.	Cables installation and connection	<input type="checkbox"/>	<input type="checkbox"/>			
B5.	Wiring identification and labelling	<input type="checkbox"/>	<input type="checkbox"/>			
B6.	Shield / armouring grounding check	<input type="checkbox"/>	<input type="checkbox"/>			
B7.	Spares and spacing	<input type="checkbox"/>	<input type="checkbox"/>			
B8.	Electrical execution	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C - Junction box / Local Panel</b>						
C1.	Junction box / Local panel installation	<input type="checkbox"/>	<input type="checkbox"/>			
C2.	Cables entry	<input type="checkbox"/>	<input type="checkbox"/>			
C3.	Accessories installed	<input type="checkbox"/>	<input type="checkbox"/>			
C4.	Sealing	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1D - Range and Calibration Check</b>						
D1.	Ranges and calibration of skid instrumentation (1)	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1E - Final inspection</b>						
E1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>			
E2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
<b>Notes: 1)</b> Unless otherwise required, the field calibrations shall be performed and recorded on the forms relevant to bench test calibration report						
REMARKS :						
<b>1F- FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>		<b>TECHNIP</b>		<b>OWNER</b>
	<b>NAME</b>					
	<b>SIGNATURE</b>					
	<b>DATE</b>					



 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>			
QUALITY CONTROL FORM		ICF 039A		<b>CLIENT</b>			
<b>FIELD INSTRUMENT INSTALLATION FINAL INSPECTION REPORT</b>		PROJ. No. 080557C001		REV. 0	SH. _1_ OF _1_		
		CONTRACTOR:			ICF 039A N° _____		
<b>GENERAL DATA</b>							
<b>Instrument TAG:</b>							
Serial:							
Model:							
MR:							
P.O.:							
P&ID:							
Rev:							
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1590.001)			<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>		
					<b>INSPECTOR SIGNATURE &amp; DATE</b>		
					<b>CONTR.</b>	<b>TECHNIP</b>	
<b>1A- Inspection / Check Point</b>							
A1.	Instrument calibration	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A2.	Instrument installation	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A3.	Impulse line pressure test	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A4.	Instrument signal cable to JB/LP and wiring check	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A5.	Instrument power cable and wiring check if any	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A6.	Cable way in trays; in conduits or underground- layout and installation checks	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A7.	Instrument cable - terminals execution and connection to Instruments and J.Box/L.Panel sides	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A8.	Instrument air sub headers pressure test	<input type="checkbox"/>	<input type="checkbox"/>	ICF 038A (*)			
A9.	Pneumatic connection and air-supply leak test	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)			
A10.	Instrument ready for Loop check (relevant JB/LP checked, relevant cable from JB/LP to system checked, relevant system powered up)	<input type="checkbox"/>	<input type="checkbox"/>				
<b>REMARKS :</b> (*) THE QC REPORTS SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES :							
A1. ICF _____ N° _____							
A2. ICF _____ N° _____							
A3. ICF _____ N° _____							
A4. ICF _____ N° _____							
A5. ICF _____ N° _____							
A6. ICF _____ N° _____							
A7. ICF _____ N° _____							
A8. ICF 038A N° _____							
A9. ICF _____ N° _____							
<b>INSPECTORS</b>		<b>CONTRACTOR</b>		<b>TECHNIP</b>		<b>OWNER</b>	
<b>NAME</b>							
<b>SIGNATURE</b>							
<b>DATE</b>							

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		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – PRECOMMISSIONING / COMMISSIONING – INSTRUMENTATION &amp; AUTOMATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1500-051	<b>Rev. No.</b> 0	Page 1 of 2	

**QUALITY CONTROL PLAN - PRECOMMISSIONING / COMMISSIONING  
INSTRUMENTATION & AUTOMATION**

QC REPORT CODE	DESCRIPTION	NOTES
QCR 1500.P51	FIELD INSTRUMENTS VISUAL INSPECTION	
QCR 1500.P52	FIELD INSTRUMENTS TIGHTNESS TEST OF IMPULSE LINES CONNECTIONS	
QCR 1500.P53	FIELD INSTRUMENTS PRESSURE SAFETY VALVES CALIBRATION TEST	(1)
QCR 1500.P54	FIELD INSTRUMENTS FLOW ELEMENT INSPECTION	
QCR 1500.P55	LOOP CHECK REPORT	(1)
W12	MISCELLANEA - INSPECTION	

(1) Single certificate for each item

**REFERENCE DOCUMENTS:**

- 080557C-000-STC-1590-001 Installation Standards
- 080557C-000-JSS-1590-001 Job Specification for Instrumentation Installation Works
- 080557C-000-PP-850 Site Co-ordination

**LEGENDS**

H	=	HOLD (Work Stop for Inspection- RFI required)
W	=	WITNESS (RFI required)
WC	=	100% SUPERVISION AND EXAMINATION BY CONTRACTOR
S	=	SURVEILLANCE (NO RFI)
R	=	REVIEW of QC REPORTS
N/A	=	NOT APPLICABLE
P	=	PREPARATION
A	=	DOCUMENT APPROVAL
IFA	=	ISSUED FOR APPROVAL
INFO	=	FOR INFORMATION
!	=	WARNING (Control of document revision status)
N.A.	=	NOT ACCEPTED
ACC.	=	ACCEPTED

			 Govindaraj Subramanian- External 2019.10.18 10:55:26 +05'30'	 Karthalarajan 2019.10.18 10:56:59 +05'30'	 Sivan Sankaranarayanan 2019.10.21 16:02:18 +05'30'	 Morischristopher Jesumariam 2019.11.01 13:18:02 +05'30'
0	14-10-2019	ISSUED FOR IMPLEMENTATION	SGR	KRS	SS	JMC
<b>REV.</b>	<b>DATE</b>	<b>STATUS</b>	<b>WRITTEN BY</b> (name & visa)	<b>CHECKED BY</b> (name & visa)	<b>APPROVED BY</b> (name & visa)	<b>AUTHOR. BY</b> (name & visa)

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		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – PRECOMMISSIONING / COMMISSIONING – INSTRUMENTATION &amp; AUTOMATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1500-051		<b>Rev. No.</b> 0	Page 2 of 2

## QUALITY CONTROL PLAN - PRECOMMISSIONING / COMMISSIONING

### INSTRUMENTATION & AUTOMATION

#### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND TEST DESCRIPTION	QCR CODE	ACTION		NOTES
			CONTR.	TECHNIP	
<b>A</b>	<b>FIELD INSTRUMENT</b>				
1	VISUAL INSPECTION	1500.P51	WC	W / R	
2	TIGHTNESS TEST OF IMPULSE LINES CONNECTIONS	1500.P52	WC	W / R	
3	PRESSURE SAFETY VALVE CALIBRATION TEST	1500.P53	WC	W / R	
4	FLOW ELEMENT INSPECTION	1500.P54	WC	W / R	
<b>B</b>	<b>LOOP CHECK</b>				
1	LOOPS CHECK REPORT	1500.P55	WC	W / R	
<b>C</b>	<b>MISCELLANEA INSPECTION REPORT</b>	W12	WC	W / R	(1)

(1): Split of site inspection responsibilities depends from the type of the inspection performed and the Contract requirements

#### GENERAL NOTES

1 THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THE JOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY TECHNIP AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN- CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF TECHNIP HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.

2 CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT TO TECHNIP/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.

 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>	
QUALITY CONTROL REPORT	1500.P51	PROJ. No. 080557C001	REV. 0
		SH. _1_ OF _1_	
CONTRACTOR:			

**PRECOMMISSIONING - QUALITY CONTROL REPORT**

***INSTRUMENTATION & AUTOMATION***

**FIELD INSTRUMENTS**

**VISUAL INSPECTION**

<b>MC PACKAGE:</b>			<b>UNIT:</b>					<b>SYSTEM:</b>		<b>NOTES</b>
<b>POS</b>	<b>TAG</b>	<b>EARTHING CONNECTION</b>	<b>SITE CALIBRATION STAMP</b>	<b>VENT / DRAIN SLOPE</b>	<b>FLOW DIRECTION</b>	<b>CONNECTING LINE (Air Supply/HP-LP)</b>	<b>LABELING &amp; TAGGING</b>	<b>WITNESSING</b>		
								<b>CONTR.</b>	<b>TECHNIP</b>	

NOTE

<b>QCR ACCEPTANCE</b>			
<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>TECHNIP</b>	<b>OWNER</b>
<b>NAME</b>			
<b>SIGNATURE</b>			
<b>DATE</b>			

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>	
QUALITY CONTROL REPORT	1500.P53	PROJ. No. 080557C001	REV. 0
		SH. _1_ OF _1_	
CONTRACTOR:			

**PRECOMMISSIONING – QUALITY CONTROL REPORT**

***INTRUMENTATION & AUTOMATION***

**PRESSURE SAFETY VALVE CALIBRATION TEST**

<b>MC PACKAGE:</b>	<b>UNIT:</b>	<b>SYSTEM:</b>		
ITEM: _____	MR/PO: _____			
SIZE: _____	MODEL N°: _____	SERIAL N°: _____		
<b>OPERATING CONDITION</b>				
SET PRESSURE: _____ Kg/Cm2	BELLOW: _____			
COLD PRESSURE: _____ Kg/Cm2	BACK PRESSURE: _____ Kg/Cm2			
REQUIRED CHECKS	REMARKS	DATE	WITNESSING	
			CONTR.	TECHNIP
TAG PLATE AND DATE				
OPERATING PRESSURE				
RESET PRESSURE				
BUBBLE TEST				

NOTE:

QCR ACCEPTANCE			
INSPECTORS	CONTRACTOR	TECHNIP	OWNER
NAME			
SIGNATURE			
DATE			

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>	
QUALITY CONTROL REPORT	W12	PROJ. No. 080557C001	REV. 0
		SH. _1_ OF _1_	
CONTRACTOR:			

INSPECTION REPORT			
1. PURPOSE OF INSPECTION _____			
QCP _____	CHECK STEP _____	AREA _____	
2. ITEM IDENTIFICATION	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
3. TYPE OF INSPECTION _____		TEST	<input type="checkbox"/>
		EXAMINATION	<input type="checkbox"/>
		CHECK	<input type="checkbox"/>
4. INSPECTION RESULT:	CONFORMING		<input type="checkbox"/>
	NOT CONFORMING		<input type="checkbox"/>
	WITH REMARKS		<input type="checkbox"/>
5. REMARKS _____			
_____			

INSPECTORS	CONTRACTOR	TECHNIP	OWNER
NAME			
SIGNATURE			
DATE			

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 	PROJECT	Standby SRU & Additional Tanks IOCL Paradip Refinery		
	CLIENT	INDIAN OIL CORPORATION LIMITED		
QCP – INSTRUMENTATION & COMMUNICATION SYSTEM INSTALLATION – WORKS IN CONTROL ROOM	Project No. 080557C001	Document No. 080557C-000-QCP-1510-001	Rev. No. 0	Page 1 of 6

**QUALITY CONTROL PLAN – INSTRUMENTATION & COMMUNICATION SYSTEM INSTALLATION**

**WORKS IN CONTROL ROOM**

TYPE OF QUALITY CONTROL REPORT	CERTIFICATION EXTENT
ICF-001U	“U” Unpacking
ICF-006B	“B” Before Installation
ICF-001A; ICF-002A; ICF-006A; ICF-007A; ICF-010A; ICF-013A	“A” Installation
	Final Inspection Report

**REFERENCE DOCUMENTS:**

- 080557C-000-STC-1590-001 Installation Standards
- 080557C-000-JSS-1590-001 Job Specification for Instrumentation Installation Works
- 080557C-000-PP-805 Site Co-ordination

**LEGENDS**

- H = HOLD (Work Stop for Inspection- RFI required)
- W = WITNESS (RFI required)
- WC = 100% SUPERVISION AND EXAMINATION BY CONTRACTOR
- S = SURVEILLANCE (NO RFI)
- R = REVIEW of QC REPORTS
- N/A = NOT APPLICABLE
- P = PREPARATION
- A = DOCUMENT APPROVAL
- IFA = ISSUED FOR APPROVAL / AUTHORIZATION
- ! = WARNING (Control of document revision status)
- INFO = FOR INFORMATION
- N.A. = NOT ACCEPTED
- ACC. = ACCEPTED

REV.	DATE	STATUS	WRITTEN BY (name & visa)	CHECKED BY (name & visa)	APPROVED BY (name & visa)	AUTHOR. BY (name & visa)
0	14-10-2019	ISSUED FOR IMPLEMENTATION	 Govindraj Subramanian-External 2019.10.14 16:41:41 +05'30'	 Shyam Sunder Kantbalagan 2019.10.18 10:38:10 +05'30'	 Siram Sarikaranarayanan 2019.10.21 16:04:50 +05'30'	 Morischristopher Jesumarjan 2019.11.01 13:18:31 +05'30'

**DOCUMENT REVISIONS**

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – WORKS IN CONTROL ROOM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1510-001	<b>Rev. No.</b> 0	Page 2 of 6

## QUALITY CONTROL PLAN

### INSTRUMENTATION AND COMMUNICATION SYSTEM INSTALLATION

#### WORKS IN CONTROL ROOM (1510.00)

#### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP.	
<b>A</b>	<b>PRELIMINARY ACTIVITIES</b>				
A1	CHECK OF CONTRACTOR DRAWINGS REVISION STATUS	N/A	<b>!</b>	<b>!</b>	
A2	CHECK OF CONTRACTOR TECHNICAL SPECIFICATION AND PROCEDURE	N/A	IFA	A	
A3	CONTRACTOR'S METHOD STATEMENT (IF REQUIRED)	N/A	IFA	A	(1)
A4	AVAILABILITY OF VENDOR INSTALLATION MANUAL, DRAWING AND DOCUMENTATION	N/A	WC	INFO	(1)
A5	REVIEW OF SYSTEMS FAT PUNCH LIST (IF ANY)	By Vendor	WC	R	
<b>B</b>	<b>BEFORE INSTALLATION</b>				
B1	MATERIAL IDENTIFICATION AND CONSERVATION STATUS (FOR BOTH LOOSE AND PREASSEMBLED MATERIALS) UNPACKING VISUAL INSPECTION	ICF-001U	WC	W/R	
B2	<b>INSTRUMENT CABLES DRUM CHECK</b>				
B2.1A	Cables Drum Test	ICF-006B	WC	W/R	
B2.1B	Cables Drum Check	ICF-006B	WC	W/R	
B2.1C	Final inspection	ICF-006B	WC	W/R	
B2.1D	Final Documentation Review	ICF-006B	P	R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – WORKS IN CONTROL ROOM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1510-001	<b>Rev. No.</b> 0	Page 3 of 6

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP.	
<b>C</b>	<b>INSTALLATION</b>				
C1	<b>INSTALLATION OF CABINETS, BOARD EQUIPMENT AND RACKS</b>				
C1.1	<b>Instrument Equipment Installation</b>				
C1.1A	Support installation	ICF-001A	WC	W/R	
C1.1B	Internal connection	ICF-001A	WC	W/R	
C1.1C	Labelling & internal components check	ICF-001A	WC	W/R	
C1.1D	Final inspection	ICF-001A	WC	W/R	
C1.2	<b>Instrument Equipment Ready for Power On</b>				
C1.2A	IP Installation	ICF-001A	WC	W/R	
C1.2B	Power & Grounding Connection	ICF-001A	WC	W/R	
C1.2C	Battery Check	ICF-001A	WC	W/R	
C1.2D	Final inspection	ICF-001A	WC	W/R	
C1.3A	<b>Final Documentation Review</b>	ICF-001A	P	R	
C2	<b>INSTALLATION OF CABLE TRAYS</b>				
C2.1A	Prefabrication & installation of supports	ICF-007A	WC	W/R	
C2.1B	Installation of conduit	ICF-007A	WC	W/R	
C2.1C	Installation of trays (False Floor and inside Control Room)	ICF-007A	WC	W/R	
C2.1D	Grounding	ICF-007A	WC	W/R	
C2.1E	Installation of covers	ICF-007A	WC	W/R	
C2.1F	Final inspection	ICF-007A	WC	W/R	
C2.1G	Final Documentation Review	ICF-007A	P	R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – WORKS IN CONTROL ROOM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1510-001	<b>Rev. No.</b> 0	Page 4 of 6

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP.	
C3	<b>INSTALLATION OF CABLES AND MULTICABLES</b>				
C3.1A	Instrument Cables Drum Check	ICF-006B / ICF-006A	WC	W/R	
C3.1B	Cables Installation (False Floor and inside Control Room)	ICF-006A	WC	W/R	
C3.1C	Cables Test	ICF-006A	WC	W/R	
C3.1D	Cables Check	ICF-006A	WC	W/R	
C3.1E	Final inspection	ICF-006A	WC	W/R	
C3.1F	Final Documentation Review	ICF 006A	P	R	
C4	<b>CONNECTION OF CABLES AND MULTICABLES AT BOTH ENDS</b>				
C4.1A	Source point check	ICF-010A	WC	W/R	
C4.1B	Destination point check	ICF-010A	WC	W/R	
C4.1C	Final inspection	ICF-010A	WC	W/R	
C4.1D	Final Documentation Review	ICF-010A	P	R	
C5	<b>INSTALLATION OF CONTROL SYSTEMS</b>				
C5.1	<b>Instrument Equipment Installation</b>				
C5.1A	Support installation (False Floor and inside Control Room)	ICF-001A	WC	W/R	
C5.1B	Internal connection	ICF-001A	WC	W/R	
C5.1C	Labelling & internal components check	ICF-001A	WC	W/R	
C5.1D	Final inspection	ICF-001A	WC	W/R	
C5.2	<b>Instrument Equipment Ready for Power On</b>				
C5.2A	IP Installation	ICF-001A	WC	W/R	
C5.2B	Power & Grounding Connection	ICF-001A	WC	W/R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – WORKS IN CONTROL ROOM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1510-001	<b>Rev. No.</b> 0	Page 5 of 6

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP.	
C5.2C	Battery Check	ICF-001A	WC	W/R	
C5.2D	Final inspection	ICF-001A	WC	W/R	
C5.3A	<b>Final Documentation Review</b>	ICF-001A	P	R	
C5F	<b>INSTALLATION OF CONTROL SYSTEMS (FOUNDATION FIELDBUS ONLY)</b>				
C5F.1	<b>Instrument Equipment Installation</b>				
C5F.1A	Support installation	ICF-002A	WC	W/R	
C5F.1B	Internal connection	ICF-002A	WC	W/R	
C5F.1C	Labelling & internal components check	ICF-002A	WC	W/R	
C5F.1D	Final inspection	ICF-002A	WC	W/R	
C5F.2	<b>Instrument Equipment Ready for Power On</b>				
C5F.2A	IP Installation	ICF-002A	WC	W/R	
C5F.2B	Power & Grounding Connection	ICF-002A	WC	W/R	
C5F.2C	Battery Check	ICF-002A	WC	W/R	
C5F.2D	Final inspection	ICF-002A	WC	W/R	
C5F.3	<b>Fieldbus Segment Standard Checkout</b>				
C5F.3A	DC voltage measurement at marshalling cabinet (power supply connected)	ICF-002A	WC	W/R	
C5F.3B	Marshalling cabinet signal level	ICF-002A	WC	W/R	
C5F.3C	Marshalling cabinet noise level	ICF-002A	WC	W/R	
C5F.3D	Check	ICF-002A	WC	W/R	
C5F.3E	Final inspection	ICF-002A	WC	W/R	
C5F.4	<b>Fieldbus Segment Extended Checkout</b>				
C5F.4A	Resistance measurement at Marshalling Cabinet (trunk and spur connected, devices and power supply disconnected)	ICF-002A	WC	W/R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – WORKS IN CONTROL ROOM</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1510-001	<b>Rev. No.</b> 0	Page 6 of 6

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP.	
C5F.4B	Capacitance measurement at Marshalling Cabinet	ICF-002A	WC	W/R	
C5F.4C	DC voltage measurement at Marshalling Cabinet (power supply connected)	ICF-002A	WC	W/R	
C5F.4D	Signal and noise level measurement at Marshalling Cabinet	ICF-002A	WC	W/R	
C5F.4E	Field end measurement for each device (after download)	ICF-002A	WC	W/R	
C5F.4F	Final check at Marshalling Cabinet	ICF-002A	WC	W/R	
C5F.4G	Final inspection	ICF-002A	WC	W/R	
C5F.5A	<b>Final Documentation Review</b>	ICF-002A	P	R	
C6	<b>INSTALLATION OF F&amp;G / TELECOM EQUIPMENT</b>				
C6.1A	Installation of support (False Floor and inside Control Room including False Ceiling)	ICF-013A	WC	W/R	
C6.1D	Installation of instrument	ICF-013A	WC	W/R	
C6.1E	Check	ICF-013A	WC	W/R	
C6.1F	Final inspection	ICF-013A	WC	W/R	
C6.1G	Final Documentation Review	ICF-013A	P	R	

## GENERAL NOTES

1 THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THE JOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY TECHNIP AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN- CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF TECHNIP HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.

2 CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT TO TECHNIP/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.

**NOTES:** (1) A COPY OF THE DOCUMENT WILL BE DELIVERED TO COMPANY FOR INFORMATION

 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
QUALITY CONTROL FORM ICF 001A		<b>CLIENT</b>		<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>INSTRUMENT EQUIPMENT INSTALLATION SUMMARY REPORT (ready for Power-On)</b>		PROJ. No. 080557C001	REV. 0	SH. _1_OF _1_		
		CONTRACTOR:		ICF 001A N° _____		
<b>GENERAL DATA</b>						
TAG / identification						
Type (see bottom):						
Ref. Drawing & rev:						
Control Room / Location:						
MR / P.O. No.:						
<b>INSTALLATION INSPECTION</b>						
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1510.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
					<b>CONTR.</b>	<b>TECHNIP</b>
<b>1A - Support Installation</b>						
A1.	Support installation	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Equipment layout alignment and fixing	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1B - Internal Connection</b>						
B1.	Internal wiring done	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Internal grounding done	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C - Labelling &amp; internal components Check</b>						
C1.	Labelling	<input type="checkbox"/>	<input type="checkbox"/>			
C2.	Internal components identification	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1D - Final inspection</b>						
D1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>			
D2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2A - IP Installation</b>						
A1.	Check Ingress Protection (IP) means	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2B - Power &amp; Grounding Connection</b>						
B1.	System cable connected (if any)	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Power supply cable connected.	<input type="checkbox"/>	<input type="checkbox"/>			
B3.	Common grounding connected	<input type="checkbox"/>	<input type="checkbox"/>			
B4.	Safety grounding connected	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2C - Battery Check</b>						
C1.	Back-up battery check	<input type="checkbox"/>	<input type="checkbox"/>			
C2.	Readiness for power-on witnessed by vendor specialist	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2D - Final inspection</b>						
D1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>			
D2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
<b>Equipment Types:</b> Traditional Panels and Racks; DCS, PLC, AC (auxiliary cabinets), MC (marshalling cabinets), SIC (special instrument cabinets), EIC (Electrical/instrument interface cabinets), PS (power supply cabinets), PMC (package manufactured cabinets), Etc.....						
REMARKS :						
<b>5A - FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>		<b>TECHNIP</b>	<b>OWNER</b>	
	<b>NAME</b>					
	<b>SIGNATURE</b>					
	<b>DATE</b>					

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**PROJECT**

**Standby SRU & Additional Tanks  
IOCL Paradip Refinery**

QUALITY CONTROL FORM

ICF 002A

**CLIENT**

**INDIAN OIL CORPORATION LIMITED**

**INSTALLATION OF CONTROL SYSTEMS (FOUNDATION  
FIELD BUS ONLY) SUMMARY REPORT**

PROJ. No. 080557C001

REV. 0

SH. \_1\_OF\_6\_

CONTRACTOR:

ICF 002A N° \_\_\_\_\_

**GENERAL DATA**

TAG / identification	
Type (see bottom):	
Ref. Drawing & rev:	
Control Room / Location:	
MR / P.O. No.:	
Field bus segment name:	

**INSTALLATION INSPECTION**

INSPECTIONS / CHECK (Ref. to QCP 1510.001)	N.A.	ACC.	Report / Reference	INSPECTOR SIGNATURE & DATE	
				CONTR.	TECHNIP
<b>1A - Support Installation</b>					
A1. Support installation	<input type="checkbox"/>	<input type="checkbox"/>			
A2. Equipment layout alignment and fixing	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1B - Internal Connection</b>					
B1. Internal wiring done	<input type="checkbox"/>	<input type="checkbox"/>			
B2. Internal grounding done	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C - Labelling &amp; internal components Check</b>					
C1. Labelling	<input type="checkbox"/>	<input type="checkbox"/>			
C2. Internal components identification	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1D - Final inspection</b>					
D1. Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>			
D2. As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2A - IP Installation</b>					
A1. Check Ingress Protection (IP) means	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2B - Power &amp; Grounding Connection</b>					
B1. System cable connected (if any)	<input type="checkbox"/>	<input type="checkbox"/>			
B2. Power supply cable connected.	<input type="checkbox"/>	<input type="checkbox"/>			
B3. Common grounding connected	<input type="checkbox"/>	<input type="checkbox"/>			
B4. Safety grounding connected	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2C - Battery Check</b>					
C1. Back-up battery check	<input type="checkbox"/>	<input type="checkbox"/>			
C2. Readiness for power-on witnessed by vendor specialist	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2D - Final inspection</b>					
D1. Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>			
D2. As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			

**Equipment Types:** Traditional Panels and Racks; DCS, PLC, AC (auxiliary cabinets), MC (marshalling cabinets), SIC (special instrument cabinets), EIC (Electrical/instrument interface cabinets), PS (power supply cabinets), PMC (package manufactured cabinets), Etc.....

REMARKS :

 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
QUALITY CONTROL FORM		ICF 002A		<b>CLIENT</b>	
<b>INSTALLATION OF CONTROL SYSTEMS (FOUNDATION FIELD BUS ONLY) SUMMARY REPORT</b>		PROJ. No. 080557C001		REV. 0	
		CONTRACTOR:		SH. _2_OF _6_ ICF 002A N° _____	
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1510.001)			<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>
					<b>INSPECTOR SIGNATURE &amp; DATE</b>
					<b>CONTR.</b>
					<b>TECHNIP</b>
<b>3A - DC voltage measurement at marshalling cabinet (power supply connected)</b>					
A1.	(+) to (-) signal	Actual =	<input type="checkbox"/>	<input type="checkbox"/>	
<b>3B - Marshalling cabinet signal level</b>					
B1.	(+) to (-) signal Expected = 300 ÷ 700 mV	Device HEX = Actual =	<input type="checkbox"/>	<input type="checkbox"/>	
B2.	(+) to (-) signal Expected = 300 ÷ 700 mV	Device HEX = Actual =	<input type="checkbox"/>	<input type="checkbox"/>	
B3.	(+) to (-) signal Expected = 300 ÷ 700 mV	Device HEX = Actual =	<input type="checkbox"/>	<input type="checkbox"/>	
B4.	(+) to (-) signal Expected = 300 ÷ 700 mV	Device HEX = Actual =	<input type="checkbox"/>	<input type="checkbox"/>	
B5.	(+) to (-) signal Expected = 300 ÷ 700 mV	Device HEX = Actual =	<input type="checkbox"/>	<input type="checkbox"/>	
B6.	(+) to (-) signal Expected = 300 ÷ 700 mV	Device HEX = Actual =	<input type="checkbox"/>	<input type="checkbox"/>	
B7.	(+) to (-) signal Expected = 300 ÷ 700 mV	Device HEX = Actual =	<input type="checkbox"/>	<input type="checkbox"/>	
B8.	(+) to (-) signal Expected = 300 ÷ 700 mV	Device HEX = Actual =	<input type="checkbox"/>	<input type="checkbox"/>	
B9.	(+) to (-) signal Expected = 300 ÷ 700 mV	Device HEX = Actual =	<input type="checkbox"/>	<input type="checkbox"/>	
B10.	(+) to (-) signal Expected = 300 ÷ 700 mV	Device HEX = Actual =	<input type="checkbox"/>	<input type="checkbox"/>	
B11.	(+) to (-) signal Expected = 300 ÷ 700 mV	Device HEX = Actual =	<input type="checkbox"/>	<input type="checkbox"/>	
B12.	(+) to (-) signal Expected = 300 ÷ 700 mV	Device HEX = Actual =	<input type="checkbox"/>	<input type="checkbox"/>	
<b>3C - Marshalling cabinet noise level</b>					
C1.	(+) to (-) signal Expected <= 75 ÷ mV	Actual Peak Noise FF Frequencies =	<input type="checkbox"/>	<input type="checkbox"/>	
C2.	(+) to (-) signal Expected <= 150 ÷ mV	Actual Peak Noise FF HF =	<input type="checkbox"/>	<input type="checkbox"/>	
C3.	(+) to (-) signal Expected <= 150 ÷ mV	Actual Peak Noise FF LF =	<input type="checkbox"/>	<input type="checkbox"/>	
C4.	(+) to (-) signal Expected <= 75 ÷ mV	Actual Peak Noise FF Frequencies =	<input type="checkbox"/>	<input type="checkbox"/>	
C5.	(+) to (-) signal Expected <= 150 ÷ mV	Actual Peak Noise FF HF =	<input type="checkbox"/>	<input type="checkbox"/>	
C6.	(+) to (-) signal Expected <= 150 ÷ mV	Actual Peak Noise FF LF =	<input type="checkbox"/>	<input type="checkbox"/>	
<b>3D - Check</b>					
D1.	Wiring status	<input type="checkbox"/> OK <input type="checkbox"/> BAD	<input type="checkbox"/>	<input type="checkbox"/>	
D2.	Retransmit	<input type="checkbox"/> None <input type="checkbox"/> Yes Device HEX =	<input type="checkbox"/>	<input type="checkbox"/>	
<b>3E- Final inspection</b>					
E1.	Final visual inspection		<input type="checkbox"/>	<input type="checkbox"/>	
E2.	As-built marked up copy updated and available		<input type="checkbox"/>	<input type="checkbox"/>	
REMARKS :					

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 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>			
QUALITY CONTROL FORM		ICF 002A		<b>CLIENT</b>			
<b>INSTALLATION OF CONTROL SYSTEMS (FOUNDATION FIELD BUS ONLY) SUMMARY REPORT</b>		PROJ. No. 080557C001		REV. 0	SH. <u>  3  </u> OF <u>  6  </u>		
		CONTRACTOR:			ICF 002A N° _____		
INSPECTIONS / CHECK (Ref. to QCP 1510.001)			N.A.	AC C.	Report / Reference	INSPECTOR SIGNATURE & DATE	
						CONTR.	TECHNIP
<b>4A - Resistance measurement at Marshalling Cabinet (trunk and spur connected, devices and power supply disconnected)</b>							
A1.	(+)to(-) signal Expected => 50KΩ (increasing)	Actual=	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	(+)to shield Expected = open circuit (>20MΩ)	Actual=	<input type="checkbox"/>	<input type="checkbox"/>			
A3.	(-)to shield Expected = open circuit (>20MΩ)	Actual=	<input type="checkbox"/>	<input type="checkbox"/>			
A4.	(+)to ground bar Expected = open circuit (>20MΩ)	Actual=	<input type="checkbox"/>	<input type="checkbox"/>			
A5.	(-)to ground bar Expected = open circuit (>20MΩ)	Actual=	<input type="checkbox"/>	<input type="checkbox"/>			
A6.	Shield to ground bar Expected = open circuit (>20MΩ)	Actual=	<input type="checkbox"/>	<input type="checkbox"/>			
<b>4B - Capacitance measurement at Marshalling Cabinet</b>							
B1.	(+)to(-) signal Expected => 1μF (+/-20%)	Actual=	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	(+)to shield Expected <= 300 nF	Actual=	<input type="checkbox"/>	<input type="checkbox"/>			
B3.	(-)to shield Expected <=300 nF	Actual=	<input type="checkbox"/>	<input type="checkbox"/>			
B4.	(+)to ground bar Expected <= 300 nF	Actual=	<input type="checkbox"/>	<input type="checkbox"/>			
B5.	(-)to ground bar Expected <= 300 nF	Actual=	<input type="checkbox"/>	<input type="checkbox"/>			
B6.	Shield to ground bar Expected <= 300 nF	Actual=	<input type="checkbox"/>	<input type="checkbox"/>			
<b>4C- DC voltage measurement at Marshalling Cabinet (power supply connected)</b>							
C1.	(+)to(-) signal	Actual=	<input type="checkbox"/>	<input type="checkbox"/>			
<b>4D- Signal and noise level measurement at Marshalling Cabinet</b>							
D1.	(+)to(-) signal Expected = 300÷700 mV	Actual las=	<input type="checkbox"/>	<input type="checkbox"/>			
D2.	(+)to(-) signal Expected <= 75 mV	Actual peak noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
D3.	(+)to(-) signal Expected <= 150 mV	Actual peak noise HF =	<input type="checkbox"/>	<input type="checkbox"/>			
D4.	(+)to(-) signal Expected <= 150 mV	Actual peak noise LF =	<input type="checkbox"/>	<input type="checkbox"/>			
D5.	(+)to(-) signal Expected <= 75 mV	Actual noise average FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
D6.	(+)to(-) signal Expected <= 150 mV	Actual noise average HF =	<input type="checkbox"/>	<input type="checkbox"/>			
D7.	(+)to(-) signal Expected <= 150 mV	Actual noise average LF =	<input type="checkbox"/>	<input type="checkbox"/>			
<b>REMARKS:</b>							

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**PROJECT**

**Standby SRU & Additional Tanks  
IOCL Paradip Refinery**

QUALITY CONTROL FORM

ICF 002A

**CLIENT**

**INDIAN OIL CORPORATION LIMITED**

**INSTALLATION OF CONTROL SYSTEMS (FOUNDATION  
FIELD BUS ONLY) SUMMARY REPORT**

PROJ. No. 080557C001

REV. 0

SH. \_4\_OF \_6\_

CONTRACTOR:

ICF 002A N° \_\_\_\_\_

SINSPECTIONS / CHECK (Ref. to QCP 1510.001)			N.A.	AC C.	Report / Reference	INSPECTOR SIGNATURE & DATE	
						CONTR.	TECHNIP
<b>4E - Field End Measurement for each device (after download)</b>							
<b>E1</b>	<b>Node Address</b>	HEX	<input type="checkbox"/>	<input type="checkbox"/>			
E1.1	(+)to(-) signal Expected = 300÷700 mV	Actual las=	<input type="checkbox"/>	<input type="checkbox"/>			
E1.2	(+)to(-) signal Expected <= 75 mV	Actual peak noise FF Frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
E1.3	(+)to(-) signal Expected <= 75 mV	Actual AUG noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
<b>E2</b>	<b>Node Address</b>	HEX	<input type="checkbox"/>	<input type="checkbox"/>			
E2.1	(+)to(-) signal Expected = 300÷700 mV	Actual las=	<input type="checkbox"/>	<input type="checkbox"/>			
E2.2	(+)to(-) signal Expected <= 75 mV	Actual peak noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
E2.3	(+)to(-) signal Expected <= 75 mV	Actual AUG noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
<b>E3</b>	<b>Node Address</b>	HEX	<input type="checkbox"/>	<input type="checkbox"/>			
E3.1	(+)to(-) signal Expected = 300÷700 mV	Actual las=	<input type="checkbox"/>	<input type="checkbox"/>			
E3.2	(+)to(-) signal Expected <= 75 mV	Actual peak noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
E3.3	(+)to(-) signal Expected <= 75 mV	Actual AUG noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
<b>E4</b>	<b>Node Address</b>	HEX	<input type="checkbox"/>	<input type="checkbox"/>			
E4.1	(+)to(-) signal Expected = 300÷700 mV	Actual las=	<input type="checkbox"/>	<input type="checkbox"/>			
E4.2	(+)to(-) signal Expected <= 75 mV	Actual peak noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
E4.3	(+)to(-) signal Expected <= 75 mV	Actual AUG noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
<b>E5</b>	<b>Node Address</b>	HEX	<input type="checkbox"/>	<input type="checkbox"/>			
E5.1	(+)to(-) signal Expected = 300÷700 mV	Actual las=	<input type="checkbox"/>	<input type="checkbox"/>			
E5.2	(+)to(-) signal Expected <= 75 mV	Actual peak noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
E5.3	(+)to(-) signal Expected <= 75 mV	Actual AUG noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
<b>E6</b>	<b>Node Address</b>	HEX	<input type="checkbox"/>	<input type="checkbox"/>			
E6.1	(+)to(-) signal Expected = 300÷700 mV	Actual las=	<input type="checkbox"/>	<input type="checkbox"/>			
E6.2	(+)to(-) signal Expected <= 75 mV	Actual peak noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
E6.3	(+)to(-) signal Expected <= 75 mV	Actual AUG noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
<b>E7</b>	<b>Node Address</b>	HEX	<input type="checkbox"/>	<input type="checkbox"/>			
E7.1	(+)to(-) signal Expected = 300÷700 mV	Actual las=	<input type="checkbox"/>	<input type="checkbox"/>			
E7.2	(+)to(-) signal Expected <= 75 mV	Actual peak noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
E7.3	(+)to(-) signal Expected <= 75 mV	Actual AUG noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
REMARKS:							

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**PROJECT**

**Standby SRU & Additional Tanks  
IOCL Paradip Refinery**

QUALITY CONTROL FORM

ICF 002A

**CLIENT**

**INDIAN OIL CORPORATION LIMITED**

**INSTALLATION OF CONTROL SYSTEMS  
(FOUNDATION FIELD BUS ONLY) SUMMARY REPORT**

PROJ. No. 080557C001

REV. 0

SH. \_5\_OF\_6\_

CONTRACTOR:

ICF 002A N° \_\_\_\_\_

INSPECTIONS / CHECK (Ref. to QCP 1510.001)			N.A.	ACC.	Report / Reference	INSPECTOR SIGNATURE & DATE	
						CONTR.	TECHNIP
<b>4E - Field End Measurement for each device (after download)</b>							
<b>E8</b>	<b>Node Address</b>	HEX	<input type="checkbox"/>	<input type="checkbox"/>			
E8.1	(+)to(-) signal Expected = 300÷700 mV	Actual las =	<input type="checkbox"/>	<input type="checkbox"/>			
E8.2	(+)to(-) signal Expected <= 75 mV	Actual peak noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
E8.3	(+)to(-) signal Expected <= 75 mV	Actual AUG noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
<b>E9</b>	<b>Node Address</b>	HEX	<input type="checkbox"/>	<input type="checkbox"/>			
E9.1	(+)to(-) signal Expected = 300÷700 mV	Actual las =	<input type="checkbox"/>	<input type="checkbox"/>			
E9.2	(+)to(-) signal Expected <= 75 mV	Actual peak noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
E9.3	(+)to(-) signal Expected <= 75 mV	Actual AUG noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
<b>E10</b>	<b>Node Address</b>	HEX	<input type="checkbox"/>	<input type="checkbox"/>			
E10.1	(+)to(-) signal Expected = 300÷700 mV	Actual las =	<input type="checkbox"/>	<input type="checkbox"/>			
E10.2	(+)to(-) signal Expected <= 75 mV	Actual peak noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
E10.3	(+)to(-) signal Expected <= 75 mV	Actual AUG noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
<b>E11</b>	<b>Node Address</b>	HEX	<input type="checkbox"/>	<input type="checkbox"/>			
E11.1	(+)to(-) signal Expected = 300÷700 mV	Actual las =	<input type="checkbox"/>	<input type="checkbox"/>			
E11.2	(+)to(-) signal Expected <= 75 mV	Actual peak noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
E11.3	(+)to(-) signal Expected <= 75 mV	Actual AUG noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
<b>E12</b>	<b>Node Address</b>	HEX	<input type="checkbox"/>	<input type="checkbox"/>			
E12.1	(+)to(-) signal Expected = 300÷700 mV	Actual las =	<input type="checkbox"/>	<input type="checkbox"/>			
E12.2	(+)to(-) signal Expected <= 75 mV	Actual peak noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			
E12.3	(+)to(-) signal Expected <= 75 mV	Actual AUG noise FF frequencies =	<input type="checkbox"/>	<input type="checkbox"/>			

REMARKS:



 		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
QUALITY CONTROL FORM ICF 006A		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>	
<b>INSTRUMENT CABLES INSTALLATION SUMMARY REPORT</b>		PROJ. No. 080557C001	REV. 0	SH. _1_OF _1_
		CONTRACTOR:		ICF 006A N° _____
<b>GENERAL DATA</b>				
<b>Cable tag / ID:</b>		<b>Connected from:</b>		
<b>Cable type:</b>		<b>Connected to:</b>		
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1510.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>
				<b>INSPECTOR SIGNATURE &amp; DATE</b>
				<b>CONTR.</b>
				<b>TECHNIP</b>
<b>1A – Instrument Cable Drum Check</b>		<input type="checkbox"/>	<input type="checkbox"/>	ICF 006B (*)
<b>1B - Cables Installation</b>		<b>Results</b>		
B1.	Minimum separation from Electrical cables	<input type="checkbox"/>	<input type="checkbox"/>	
B2.	Cable fastening	<input type="checkbox"/>	<input type="checkbox"/>	
B3.	Cable laying and segregation	<input type="checkbox"/>	<input type="checkbox"/>	
<b>1C - Cables Test</b>		<b>Results</b>		
C1.	Insulation (Megger) 500 VDC values see notes: (1) (2)	C/C	<input type="checkbox"/>	<input type="checkbox"/>
C2.		C/G	<input type="checkbox"/>	<input type="checkbox"/>
C3.		C/S	<input type="checkbox"/>	<input type="checkbox"/>
C4.		C/A	<input type="checkbox"/>	<input type="checkbox"/>
C5.		S/A	<input type="checkbox"/>	<input type="checkbox"/>
C6.	Continuity test	S	<input type="checkbox"/>	<input type="checkbox"/>
C7.		C	<input type="checkbox"/>	<input type="checkbox"/>
C8.		A	<input type="checkbox"/>	<input type="checkbox"/>
C9.	S/A grounding test (3)	<input type="checkbox"/>	<input type="checkbox"/>	
<b>1D - Cables Check</b>		<b>Results</b>		
D1.	Cable type and size	<input type="checkbox"/>	<input type="checkbox"/>	
D2.	Cable labelling and identification (each.....m)	<input type="checkbox"/>	<input type="checkbox"/>	
D3.	Length (m)	From	<input type="checkbox"/>	<input type="checkbox"/>
D4.		To	<input type="checkbox"/>	<input type="checkbox"/>
D5.		Total	<input type="checkbox"/>	<input type="checkbox"/>
<b>1E- Final Inspection</b>				
E1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>	
E2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Notes:</b> (1) Record only the lowest reading. (2) C/C, C/G, C/S, C/A in MegaOhm; S/A in Ohm. A minimum of 2 MegaOhm insulation resistance is to be guaranteed between conductors and ground. (3) Shield to be grounded in control room only. (*) THE QC REPORT N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES : ICF 006B N° _____				
<b>Legend:</b> S= Shield A= Armouring C= Core G= Ground				
REMARKS:				
<b>1F – FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>		<b>TECHNIP</b>
	<b>NAME</b>			
	<b>SIGNATURE</b>			
	<b>DATE</b>			

 		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>				
QUALITY CONTROL FORM ICF 006B		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>				
<b>INSTRUMENT CABLES DRUM CHECK SUMMARY REPORT</b>		PROJ. No. 080557C001	REV. 0	SH. _1_OF_2_			
		CONTRACTOR:		ICF 006B N° _____			
<b>GENERAL DATA</b>							
<b>DRUM / Identification:</b>							
<b>Cable type:</b>							
<b>Fiber Optic Cable type:</b>		<input type="checkbox"/> Single Mode	<input type="checkbox"/> Multi Mode 62,5/125	<input type="checkbox"/> Multi Mode 50/125			
<b>Wire section See note (8) :</b>							
<b>THIS TEST SHALL BE CARRIED OUT BEFORE CABLE LAYING</b>							
INSPECTIONS / CHECK (Ref. to QCP 1510.001)			N.A.	ACC.	Report / Reference	INSPECTOR SIGNATURE & DATE	
						CONTR.	TECHNIP
<b>1A- Cables Drum Test</b>			Results				
A1.	Insulation (Megger) 500 VDC values see notes (1) (2)	C/C		<input type="checkbox"/>	<input type="checkbox"/>		
A2.		C/G		<input type="checkbox"/>	<input type="checkbox"/>		
A3.		C/S		<input type="checkbox"/>	<input type="checkbox"/>		
A4.		C/A		<input type="checkbox"/>	<input type="checkbox"/>		
A5.		S/A		<input type="checkbox"/>	<input type="checkbox"/>		
A6.		A/G		<input type="checkbox"/>	<input type="checkbox"/>		
A7.	Continuity test See note (3)	S		<input type="checkbox"/>	<input type="checkbox"/>		
A8.		C		<input type="checkbox"/>	<input type="checkbox"/>		
A9.		A		<input type="checkbox"/>	<input type="checkbox"/>		
A10.	Fiber optic cables attenuation value in dB/km See notes (4) (5) (6) (7)	MM	@850nm	<input type="checkbox"/>	<input type="checkbox"/>		
A11.			@1300nm	<input type="checkbox"/>	<input type="checkbox"/>		
A12.		SM	@1310nm	<input type="checkbox"/>	<input type="checkbox"/>		
A13.			@1550nm	<input type="checkbox"/>	<input type="checkbox"/>		
A14.	Verify optical length See notes (4) (5) (7)			<input type="checkbox"/>	<input type="checkbox"/>		
A15.	Verify attenuation point discontinuity see notes (4) (5) (7) (8)			<input type="checkbox"/>	<input type="checkbox"/>		
<b>1B- Cables Drum Check</b>			Results				
B1.	Cable marking			<input type="checkbox"/>	<input type="checkbox"/>		
B2.	Drum not damaged			<input type="checkbox"/>	<input type="checkbox"/>		
B3.	Cable per specification			<input type="checkbox"/>	<input type="checkbox"/>		
REMARKS:							

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 		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>			
QUALITY CONTROL FORM ICF 007A		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>			
<b>ABOVEGROUND (C. ROOM INCL.) INSTR. CABLE WAYS SUMMARY REPORT</b>		PROJ. No. 080557C001	REV. 0	SH. _1_OF _1_		
		CONTRACTOR:		ICF 007A N° _____		
<b>GENERAL DATA</b>						
Location / area:		System / subsystem:		Date (dd/mm/yy):		
<input type="checkbox"/> Cable tray <input type="checkbox"/> Conduit		Type:		Material:		
Conduit size or Tray width :		Cable tray length:		Covers length:		
Section:	Identification no.	Ref. drawing:		Rev.		
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1510.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
					<b>CONTR.</b>	<b>TECHNIP</b>
<b>1A - Prefabrication and Installation of supports</b>						
A1.	Cable trays or conduits supports	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Supports painting (and retouch, if any)	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1B - Installation of conduit</b>						
B1.	Conduits bodies and fittings installation & cleaning	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Conduit sealing	<input type="checkbox"/>	<input type="checkbox"/>			
B3.	Conduit alignment and plumbness	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C - Installation of trays</b>						
C1.	Cable trays installation (as per approved layout)	<input type="checkbox"/>	<input type="checkbox"/>			
C2.	Cable tray painting retouch.	<input type="checkbox"/>	<input type="checkbox"/>			
C3.	Cable separators installed properly.	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1D - Grounding</b>						
D1.	Grounding installed properly	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1E - Installation of covers</b>						
E1.	Cable tray covers installation.	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1F - Final inspection</b>						
F1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>			
F2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
Note: A key plan showing the location of the cable tray route shall be attached to this form.						
REMARKS :						
<b>1G - FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>		<b>TECHNIP</b>	<b>OWNER</b>	
	<b>NAME</b>					
	<b>SIGNATURE</b>					
	<b>DATE</b>					



 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
QUALITY CONTROL FORM		ICF 013A		<b>CLIENT</b>	
<b>FIELD INSTRUMENT INSTALLATION SUMMARY REPORT</b>		PROJ. No: 080557C001		REV. 0	SH. _1_ OF _1_
		CONTRACTOR:			ICF 013A N° _____
<b>GENERAL DATA</b>					
<b>Tag / Identification:</b>					
MR/P.O.:					
Manufacturer & Model:					
Serial number:					
Hook Up Standard:					
Ref. drawing:					
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1510.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>
					<b>CONTR.</b> <b>TECHNIP</b>
<b>1A - Installation of support</b>					
A1.	Support prefabrication	<input type="checkbox"/>	<input type="checkbox"/>		
A2.	Support installation	<input type="checkbox"/>	<input type="checkbox"/>		
<b>1B - Secondary cable tray Installation</b>		<input type="checkbox"/>	<input type="checkbox"/>		
<b>1C - Signal cable Installation, Wiring and Instrument Grounding, cable gland Installation</b>		<input type="checkbox"/>	<input type="checkbox"/>		
<b>1D - Installation of Instrument</b>					
D1.	Hook up installation complete and sealed	<input type="checkbox"/>	<input type="checkbox"/>		
D2.	Drains / vents	<input type="checkbox"/>	<input type="checkbox"/>		
D3.	Cable glands installed and tight	<input type="checkbox"/>	<input type="checkbox"/>		
D4.	TC / RTD fully inserted with gasket bolts and nuts tight	<input type="checkbox"/>	<input type="checkbox"/>		
D5.	Signal cable and cable tray install.	<input type="checkbox"/>	<input type="checkbox"/>		
D6.	Wiring and Grounding connection	<input type="checkbox"/>	<input type="checkbox"/>		
<b>1E - Check</b>					
E1.	Instrument installation and maintenance space check	<input type="checkbox"/>	<input type="checkbox"/>		
E2.	HP & LP connections check (including Impulse line and slope)	<input type="checkbox"/>	<input type="checkbox"/>		
E3.	Flow direction check	<input type="checkbox"/>	<input type="checkbox"/>		
E4.	Cable identification	<input type="checkbox"/>	<input type="checkbox"/>		
E5.	Wiring identification & connection	<input type="checkbox"/>	<input type="checkbox"/>		
E6.	Labeling	<input type="checkbox"/>	<input type="checkbox"/>		
<b>1F - Final inspection</b>					
F1.	Final visual inspection (including material & rating)	<input type="checkbox"/>	<input type="checkbox"/>		
F2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>		
REMARKS:					
<b>1G - FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>		<b>TECHNIP</b>	<b>OWNER</b>
	<b>NAME</b>				
	<b>SIGNATURE</b>				
	<b>DATE</b>				

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 	PROJECT	Standby SRU & Additional Tanks IOCL Paradip Refinery		
	CLIENT	INDIAN OIL CORPORATION LIMITED		
QCP – INSTRUMENTATION & COMMUNICATION SYSTEM INSTALLATION – INSTRUMENT CABLES, JUNCTION BOXES, LOCAL PANELS INSTALLATION	Project No. 080557C001	Document No. 080557C-000-QCP-1520-001	Rev. No. 0	Page 1 of 7

**QUALITY CONTROL PLAN – INSTRUMENTATION & COMMUNICATION SYSTEM INSTALLATION**

**INSTRUMENT CABLES, JUNCTION BOXES & LOCAL PANELS INSTALLATION**

TYPE OF QUALITY CONTROL REPORT	CERTIFICATION EXTENT
ICF-001U	“U” Unpacking
ICF-006B	“B” Before Installation
ICF-003A; ICF-004A; ICF-006A; ICF-007A; ICF-008A; ICF-010A; ICF-014A; ICF-026A; ICF-027A	“A” Installation
	Final Inspection Report

**REFERENCE DOCUMENTS:**

- 080557C-000-STC-1590-001 Installation Standards
- 080557C-000-JSS-1590-001 Job Specification for Instrumentation Installation Works
- 080557C-000-PP-805 Site Co-ordination

**LEGENDS**

- H = HOLD (Work Stop for Inspection- RFI required)
- W = WITNESS (RFI required)
- WC = 100% SUPERVISION AND EXAMINATION BY CONTRACTOR
- S = SURVEILLANCE (NO RFI)
- R = REVIEW of QC REPORTS
- N/A = NOT APPLICABLE
- P = PREPARATION
- A = DOCUMENT APPROVAL
- IFA = ISSUED FOR APPROVAL / AUTHORIZATION
- ! = WARNING (Control of document revision status)
- INFO = FOR INFORMATION
- N.A. = NOT ACCEPTED
- ACC. = ACCETPED

			 Govindaraj Subramanian- External 2019.10.14 16:42:56 +05'30'	 Shyamsundar Kantaburjagan 2019.10.18 10:29:17 +05'30'	 Suresh Sankaranarayanan 2019.10.21 16:05:52 +05'30'	 Mortschristopher Jesumarian 2019.11.01 13:20:20 +05'30'
0	14.10.2019	ISSUED FOR IMPLEMENTATION	SGR	KRS	SS	JMC
REV.	DATE	STATUS	WRITTEN BY (name & visa)	CHECKED BY (name & visa)	APPROVED BY (name & visa)	AUTHOR. BY (name & visa)

**DOCUMENT REVISIONS**

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
QCP – INSTRUMENTATION & COMMUNICATION SYSTEM INSTALLATION – INSTRUMENT CABLES, JUNCTION BOXES, LOCAL PANELS INSTALLATION	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1520-001	<b>Rev. No.</b> 0	Page 2 of 7

## QUALITY CONTROL PLAN

### INSTRUMENTATION AND COMMUNICATION SYSTEM INSTALLATION

#### INSTRUMENT CABLES, JUNCTION BOXES & LOCAL PANELS INSTALLATION (1520.00)

#### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
<b>A</b>	<b>PRELIMINARY ACTIVITIES</b>				
A1	CHECK OF CONTRACTOR DRAWINGS REVISION STATUS	N/A	<b>!</b>	<b>!</b>	
A2	CHECK OF CONTRACTOR TECHNICAL SPECIFICATION AND PROCEDURE	N/A	P	A	
A3	CONTRACTOR'S METHOD STATEMENT (IF REQUIRED)	N/A	IFA	A	(1)
A4	AVAILABILITY OF VENDOR INSTALLATION MANUAL, DRAWING AND DOCUMENTATION	N/A	IFA	A	(1)
<b>B</b>	<b>BEFORE INSTALLATION</b>				
B1	MATERIAL IDENTIFICATION AND CONSERVATION STATUS (FOR BOTH LOOSE AND PREASSEMBLED MATERIALS) UNPACKING VISUAL INSPECTION	ICF-001U	WC	W/R	
B2	<b>INSTRUMENT CABLES DRUM CHECK</b>				
B2.1A	Cables Drum Test including Foundation Fieldbus Cables (as applicable)	ICF-006B	WC	W/R	
B2.1B	Cables Drum Check including Foundation Fieldbus Cables (as applicable)	ICF-006B	WC	W/R	
B2.1C	Final inspection	ICF-006B	WC	W/R	
B2.1D	Final Documentation Review	ICF-006B	P	R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – INSTRUMENT CABLES, JUNCTION BOXES, LOCAL PANELS INSTALLATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1520-001	<b>Rev. No.</b> 0	Page 3 of 7

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
<b>C</b>	<b>INSTALLATION</b>				
C1	<b>INSTALLATION OF FIELD CABLE TRAYS</b>				
C1.1A	Prefabrication & installation of supports	ICF-007A	WC	W/R	
C1.1C	Installation of trays	ICF-007A	WC	W/R	
C1.1D	Grounding	ICF-007A	WC	W/R	
C1.1E	Installation of covers	ICF-007A	WC	R	
C1.1F	Final inspection	ICF-007A	WC	W/R	
C1.1G	Final Documentation Review	ICF-007A	P	R	
<b>C2</b>	<b>INSTALLATION OF UNDERGROUND FIELD CONDUITS</b>				
C2.1A	Conduit concrete base and trench inspection	ICF-014A	WC	W/R	
C2.1B	Conduit installation	ICF-014A	WC	W/R	
C2.1C	Conduit installation check	ICF-014A	WC	W/R	
C2.1D	Final inspection	ICF-014A	WC	W/R	
C2.1E	Final Documentation Review	ICF-014A	P	R	
<b>C3</b>	<b>INSTALLATION OF STUB-UP</b>				
C3.1A	Stub-up concrete base and trench inspection	ICF-014A	WC	W/R	
C3.1B	Stub-up installation	ICF-014A	WC	W/R	
C3.1C	Stub-up installation check	ICF-014A	WC	W/R	
C3.1D	Final inspection	ICF-014A	WC	W/R	
C3.1E	Final Documentation Review	ICF-014A	P	R	
<b>C4</b>	<b>INSTALLATION OF ABOVEGROUND FIELD CONDUITS</b>				

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – INSTRUMENT CABLES, JUNCTION BOXES, LOCAL PANELS INSTALLATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1520-001	<b>Rev. No.</b> 0	Page 4 of 7

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C4.1A	Prefabrication & installation of supports	ICF-007A	WC	W/R	
C4.1B	Installation of conduit	ICF-007A	WC	W/R	
C4.1D	Grounding	ICF-007A	WC	W/R	
C4.1F	Final inspection	ICF-007A	WC	W/R	
C4.1G	Final Documentation Review	ICF-007A	P	R	
C5	<b>INSTALLATION OF UNDERGROUND CABLES AND MULTICABLES</b>				
C5.1A	Instrument Cables Drum Check including Foundation Fieldbus Cables (as applicable)	ICF-006B / ICF-006A	WC	W/R	
C5.1B	Cables Installation including Foundation Fieldbus Cables (as applicable)	ICF-006A	WC	W/R	
C5.1C	Cables Test including Foundation Fieldbus Cables (as applicable)	ICF-006A	WC	W/R	
C5.1D	Cables Check including Foundation Fieldbus Cables (as applicable)	ICF-006A	WC	W/R	
C5.1E	Final inspection	ICF-006A	WC	W/R	
C5.1F	Final Documentation Review	ICF 006A	P	R	
C6	<b>INSTALLATION OF ABOVEGROUND CABLES AND MULTICABLES</b>				
C6.1A	Instrument Cables Drum Check including Foundation Fieldbus Cables (as applicable)	ICF-006B / ICF-006A	WC	W/R	
C6.1B	Cables Installation including Foundation Fieldbus Cables (as applicable)	ICF-006A	WC	W/R	
C6.1C	Cables Test including Foundation Fieldbus Cables (as applicable)	ICF-006A	WC	W/R	
C6.1D	Cables Check including Foundation Fieldbus Cables (as applicable)	ICF-006A	WC	W/R	
C6.1E	Final inspection	ICF-006A	WC	W/R	
C6.1F	Final Documentation Review	ICF 006A	P	R	
C7	<b>INSTALLATION OF CABLES AND MULTICABLES IN CONDUIT</b>				
C7.1A	Instrument Cables Drum Check including Foundation Fieldbus Cables (as applicable)	ICF-006B / ICF-006A	WC	W/R	
C7.1B	Cables Installation including Foundation Fieldbus Cables (as applicable)	ICF-006A	WC	W/R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – INSTRUMENT CABLES, JUNCTION BOXES, LOCAL PANELS INSTALLATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1520-001	<b>Rev. No.</b> 0	Page 5 of 7

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C7.1C	Cables Test including Foundation Fieldbus Cables (as applicable)	ICF-006A	WC	W/R	
C7.1D	Cables Check including Foundation Fieldbus Cables (as applicable)	ICF-006A	WC	W/R	
C7.1E	Final inspection	ICF-006A	WC	W/R	
C7.1F	Final Documentation Review	ICF 006A	P	R	
<b>C8</b>	<b>CONNECTION OF CABLES AND MULTICABLES AT BOTH ENDS</b>				
C8.1A	Source point check	ICF-010A	WC	W/R	
C8.1B	Destination point check	ICF-010A	WC	W/R	
C8.1C	Final inspection	ICF-010A	WC	W/R	
C8.1D	Final Documentation Review	ICF-010A	P	R	
<b>C9</b>	<b>INSTALLATION OF FIELD MOUNTED INSTRUMENT JUNCTION BOX / FOUNDATION FIELDBUS JUNCTION BOX</b>				
C9.1A	Installation	ICF-004A	WC	W/R	
C9.1B	Connection / wiring	ICF-004A	WC	W/R	
C8.1C	Check	ICF-004A	WC	W/R	
C9.1D	Final inspection	ICF-004A	WC	W/R	
C9.1E	Final Documentation Review	ICF-004A	P	R	
<b>C10</b>	<b>INSTALLATION OF LOCAL PANELS</b>				
C10.1A	Installation	ICF-003A	WC	W/R	
C10.1B	Connection / wiring	ICF-003A	WC	W/R	
C10.1C	Check	ICF-003A	WC	W/R	
C10.1D	Final inspection	ICF-003A	WC	W/R	
C10.1E	Final Documentation Review	ICF-003A	P	R	
C10.2	<b>Instrument Equipment Ready for Power On</b>				

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – INSTRUMENT CABLES, JUNCTION BOXES, LOCAL PANELS INSTALLATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1520-001	<b>Rev. No.</b> 0	Page 6 of 7

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C10.2A	IP Installation	ICF-003A	WC	W/R	
C10.2B	Power & Grounding Connection	ICF-003A	WC	W/R	
C10.2C	Battery Check	ICF-003A	WC	W/R	
C10.2D	Final inspection	ICF-003A	WC	W/R	
C10.3A	<b>Final Documentation Review</b>	ICF-003A	P	R	
C11	<b>INSTALLATION OF FIBER OPTIC CABLES</b>				
C11.1A	Instrument Cables Drum Check	ICF-006B / ICF-006A	WC	W/R	
C11.1B	Cables Installation	ICF-026A	WC	W/R	
C11.1C	Cables Test	ICF-026A	WC	W/R	
C11.1D	Cables Check	ICF-026A	WC	W/R	
C11.1E	Final inspection	ICF-026A	WC	W/R	
C11.1F	Final Documentation Review	ICF-026A	P	R	
C12	<b>1520-12 INTERMEDIATE SPLICING OF FIBER OPTIC CABLES</b>				
C12.1A	Installation	ICF-027A	WC	W/R	
C12.1B	Check	ICF-027A	WC	W/R	
C12.1C	Test	ICF-027A	WC	W/R	
C12.1D	Final inspection	ICF-027A	WC	W/R	
C12.1E	Final Documentation Review	ICF-027A	P	R	
C13	<b>CONNECTION OF FIBER OPTIC CABLES</b>				
C13.1A	Installation	ICF-027A	WC	W/R	
C13.1B	Check	ICF-027A	WC	W/R	
C13.1C	Test	ICF-027A	WC	W/R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – INSTRUMENT CABLES, JUNCTION BOXES, LOCAL PANELS INSTALLATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1520-001	<b>Rev. No.</b> 0	Page 7 of 7

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C13.1D	Final inspection	ICF-027A	WC	W/R	
C13.1E	Final Documentation Review	ICF-027A	P	R	
C14	<b>TEST OF FIBER OPTIC CABLES</b>				
C14.1B	Check	ICF-027A	WC	W/R	
C14.1C	Test	ICF-027A	WC	W/R	
C14.1D	Final inspection	ICF-027A	WC	W/R	
C14.1E	Final Documentation Review	ICF-027A	P	R	
C15	<b>INSTALLATION OF PATCH PANELS FOR FIBER OPTIC</b>				
C15.1A	Support Installation	ICF-008A	WC	W/R	
C15.1B	Internal Connection	ICF-008A	WC	W/R	
C15.1C	Labelling & Internal Components Check	ICF-008A	WC	W/R	
C15.1D	Final inspection	ICF-008A	WC	W/R	
C15.1E	Final Documentation Review	ICF-008A	P	R	

## GENERAL NOTES

1 THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THE JOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY TECHNIP AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN- CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF TECHNIP HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.

2 CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT TO TECHNIP/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.

**NOTES:** (1) A COPY OF THE DOCUMENT WILL BE DELIVERED TO COMPANY FOR INFORMATION  
(2) TO BE FILED AS PART OF LOOP CHECK FOLDERS



 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
QUALITY CONTROL FORM		ICF 003A		<b>CLIENT</b>		
				<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>INSTALLATION OF LOCAL PANELS SUMMARY REPORT</b>			PROJ. No. 080557C001		REV. 0	
			SH. __OF __		CONTRACTOR:	
			ICF 003A N° _____			
<b>GENERAL DATA</b>						
<b>Tag / Identification:</b>		Type (see bottom):				
Ref. Drawing & rev.		Control Room:				
MR/P.O No.:						
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1520.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
					<b>CONTR.</b>	<b>TECHNIP</b>
<b>1A- Installation</b>						
A1.	Support installation	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	JB/LP position & location	<input type="checkbox"/>	<input type="checkbox"/>			
A3.	Cable glands installed and tight	<input type="checkbox"/>	<input type="checkbox"/>			
A4.	Spare holes plugged	<input type="checkbox"/>	<input type="checkbox"/>			
A5.	Protection of LP (Canopy, weather shed)	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1B – Connection / wiring</b>						
B1.	Internal wiring and markers done	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Screen connection	<input type="checkbox"/>	<input type="checkbox"/>			
B3.	Ground connection	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C - Check</b>						
C1.	Labelling	<input type="checkbox"/>	<input type="checkbox"/>			
C2.	Cable end identification (single cables and multicables)	<input type="checkbox"/>	<input type="checkbox"/>			
C3.	Terminal wiring Identification	<input type="checkbox"/>	<input type="checkbox"/>			
C4.	Components identification	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1D - Final inspection</b>						
D1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>			
D2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2A - IP Installation</b>						
A1.	Check Ingress Protection (IP) means	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2B - Power &amp; Grounding Connection</b>						
B1.	System cable connected (if any)	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Power supply cable connected.	<input type="checkbox"/>	<input type="checkbox"/>			
B3.	Common grounding connected	<input type="checkbox"/>	<input type="checkbox"/>			
B4.	Safety grounding connected	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2C – Battery Check</b>						
C1.	Back-up battery check	<input type="checkbox"/>	<input type="checkbox"/>			
C2.	Readiness for power-on witnessed by vendor specialist	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2D - Final inspection</b>						
D1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>			
D2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
<b>Equipment Types:</b> Traditional Panels and Racks; DCS, PLC, AC (auxiliary cabinets), MC (marshalling cabinets), SIC (special instrument cabinets), EIC (Electrical/instrument interface cabinets), PS (power supply cabinets), PMC (package manufactured cabinets), Etc.....						
REMARKS :						
<b>3A - FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>		<b>TECHNIP</b>	<b>OWNER</b>	
	<b>NAME</b>					
	<b>SIGNATURE</b>					
	<b>DATE</b>					

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 		<b>PROJECT</b> <b>Standby SRU &amp; Additional Tanks</b> <b>IOCL Paradip Refinery</b>				
QUALITY CONTROL FORM ICF 004A		<b>CLIENT</b> <b>INDIAN OIL CORPORATION LIMITED</b>				
<b>INSTALLATION OF FIELD MOUNTED INSTRUMENT JUNCTION BOX / FOUNDATION FIELDBUS JUNCTION BOX SUMMARY REPORT</b>		PROJ. No. 080557C001	REV. 0			
		SH. _1_OF _1_				
		CONTRACTOR: ICF 004A N° _____				
<b>GENERAL DATA</b>						
<b>Tag / Identification:</b> Ref. Drawing & rev. MR/P.O No.:						
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1520.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
					<b>CONTR.</b>	<b>TECHNIP</b>
<b>1A- Installation</b>						
A1.	Support installation	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	JB/LP position & location	<input type="checkbox"/>	<input type="checkbox"/>			
A3.	Cable glands installed and tight	<input type="checkbox"/>	<input type="checkbox"/>			
A4.	Spare holes plugged	<input type="checkbox"/>	<input type="checkbox"/>			
A5.	Protection of JB (Canopy, weather shed)	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1B – Connection / wiring</b>						
B1.	Internal wiring and markers done	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Screen connection	<input type="checkbox"/>	<input type="checkbox"/>			
B3.	Ground connection	<input type="checkbox"/>	<input type="checkbox"/>			
B4.	Spur Junction Box Terminator Connection	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C - Check</b>						
C1.	Labelling	<input type="checkbox"/>	<input type="checkbox"/>			
C2.	Cable end identification (single cables and multicables)	<input type="checkbox"/>	<input type="checkbox"/>			
C3.	Terminal wiring Identification	<input type="checkbox"/>	<input type="checkbox"/>			
C4.	Components identification	<input type="checkbox"/>	<input type="checkbox"/>			
C5.	FF Marking	<input type="checkbox"/>	<input type="checkbox"/>			
C6.	Voltage level at FF JB end	<input type="checkbox"/>	<input type="checkbox"/>			
C7.	Signal level at FF JB end	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1D - Final inspection</b>						
D1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>			
D2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
REMARKS :						
<b>1E - FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>		<b>TECHNIP</b>		<b>OWNER</b>
	<b>NAME</b>					
	<b>SIGNATURE</b>					
	<b>DATE</b>					

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 		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
QUALITY CONTROL FORM ICF 006A		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>	
<b>INSTRUMENT CABLES INSTALLATION SUMMARY REPORT</b>		PROJ. No. 080557C001	REV. 0	SH. _1_OF _1_
		CONTRACTOR:		ICF 006A N° _____
<b>GENERAL DATA</b>				
<b>Cable tag / ID:</b>		<b>Connected from:</b>		
<b>Cable type:</b>		<b>Connected to:</b>		
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1520.001)		<b>N.A.</b>	<b>AC C.</b>	<b>Report / Reference</b>
				<b>INSPECTOR SIGNATURE &amp; DATE</b>
				<b>CONTR.</b>
				<b>TECHNIP</b>
<b>1A – Instrument Cable Drum Check</b>		<input type="checkbox"/>	<input type="checkbox"/>	ICF 006B (*)
<b>1B - Cables Installation including FF cables (as applicable)</b>		Results		
B1.	Minimum separation from Electrical cables	<input type="checkbox"/>	<input type="checkbox"/>	
B2.	Cable fastening	<input type="checkbox"/>	<input type="checkbox"/>	
B3.	Cable laying and segregation	<input type="checkbox"/>	<input type="checkbox"/>	
<b>1C - Cables Test including FF cables (as applicable)</b>		Results		
C1.	Insulation (Megger) 500 VDC values see notes: (1) (2)	C/C	<input type="checkbox"/>	<input type="checkbox"/>
C2.		C/G	<input type="checkbox"/>	<input type="checkbox"/>
C3.		C/S	<input type="checkbox"/>	<input type="checkbox"/>
C4.		C/A	<input type="checkbox"/>	<input type="checkbox"/>
C5.		S/A	<input type="checkbox"/>	<input type="checkbox"/>
C6.	Continuity test	S	<input type="checkbox"/>	<input type="checkbox"/>
C7.		C	<input type="checkbox"/>	<input type="checkbox"/>
C8.		A	<input type="checkbox"/>	<input type="checkbox"/>
C9.	S/A grounding test (3)	<input type="checkbox"/>	<input type="checkbox"/>	
<b>1D - Cables Check including FF cables (as applicable)</b>		Results		
D1.	Cable type and size	<input type="checkbox"/>	<input type="checkbox"/>	
D2.	Cable labelling and identification (each.....m)	<input type="checkbox"/>	<input type="checkbox"/>	
D3.	Length (m)	From	<input type="checkbox"/>	<input type="checkbox"/>
D4.		To	<input type="checkbox"/>	<input type="checkbox"/>
D5.		Total	<input type="checkbox"/>	<input type="checkbox"/>
<b>1E- Final Inspection</b>				
E1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>	
E2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Notes:</b> (1) Record only the lowest reading. (2) C/C, C/G, C/S, C/A in MegaOhm; S/A in Ohm. A minimum of 2 MegaOhm insulation resistance is to be guaranteed between conductors and ground. (3) Shield to be grounded in control room only. (*) THE QC REPORT N° SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES : ICF 006B N° _____				
<b>Legend:</b> S= Shield A= Armouring C= Core G= Ground				
REMARKS:				
<b>1F – FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>TECHNIP</b>	<b>OWNER</b>
	<b>NAME</b>			
	<b>SIGNATURE</b>			
	<b>DATE</b>			

 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
QUALITY CONTROL FORM		ICF 006B		<b>CLIENT</b>	
<b>INSTRUMENT CABLES DRUM CHECK SUMMARY REPORT</b>		PROJ. No. 080557C001		REV. 0	
		CONTRACTOR:		SH. _1_OF_2_ ICF 006B N° _____	
<b>GENERAL DATA</b>					
<b>DRUM / Identification:</b>					
<b>Cable type:</b>					
<b>Fiber Optic Cable type:</b> <input type="checkbox"/> Single Mode <input type="checkbox"/> Multi Mode 62,5/125 <input type="checkbox"/> Multi Mode 50/125					
<b>Wire section See note (8) :</b>					
<b>THIS TEST SHALL BE CARRIED OUT BEFORE CABLE LAYING</b>					
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1520.001)			<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>
			<b>INSPECTOR SIGNATURE &amp; DATE</b>		
			<b>CONTR.</b>		<b>TECHNIP</b>
<b>1A- Cables Drum Test including FF cables (as applicable)</b>			Results		
A1.	Insulation (Megger) 500 VDC values see notes (1) (2)	C/C		<input type="checkbox"/>	<input type="checkbox"/>
A2.		C/G		<input type="checkbox"/>	<input type="checkbox"/>
A3.		C/S		<input type="checkbox"/>	<input type="checkbox"/>
A4.		C/A		<input type="checkbox"/>	<input type="checkbox"/>
A5.		S/A		<input type="checkbox"/>	<input type="checkbox"/>
A6.		A/G		<input type="checkbox"/>	<input type="checkbox"/>
A7.	Continuity test See note (3)	S		<input type="checkbox"/>	<input type="checkbox"/>
A8.		C		<input type="checkbox"/>	<input type="checkbox"/>
A9.		A		<input type="checkbox"/>	<input type="checkbox"/>
A10.	Fiber optic cables attenuation value in dB/km See notes (4) (5) (6) (7)	MM	@850nm	<input type="checkbox"/>	<input type="checkbox"/>
A11.			@1300nm	<input type="checkbox"/>	<input type="checkbox"/>
A12.		SM	@1310nm	<input type="checkbox"/>	<input type="checkbox"/>
			@1550nm	<input type="checkbox"/>	<input type="checkbox"/>
A14.	Verify optical length See notes (4) (5) (7)			<input type="checkbox"/>	<input type="checkbox"/>
A15.	Verify attenuation point discontinuity see notes (4) (5) (7) (8)			<input type="checkbox"/>	<input type="checkbox"/>
<b>1B- Cables Drum Check including FF cables (as applicable)</b>			Results		
B1.	Cable marking			<input type="checkbox"/>	<input type="checkbox"/>
B2.	Drum not damaged			<input type="checkbox"/>	<input type="checkbox"/>
B3.	Cable per specification			<input type="checkbox"/>	<input type="checkbox"/>
<b>REMARKS:</b>					

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 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
QUALITY CONTROL FORM		ICF 007A		<b>CLIENT</b>		
<b>ABOVEGROUND (C.ROOM INCL.) INSTR. CABLE WAYS SUMMARY REPORT</b>		PROJ. No. 080557C001		REV. 0	SH. _1_OF _1_	
		CONTRACTOR:			ICF 007A N° _____	
<b>GENERAL DATA</b>						
Location / area:		System / subsystem:		Date (dd/mm/yy):		
<input type="checkbox"/> Cable tray <input type="checkbox"/> Conduit <input type="checkbox"/> Cable duct		Type:		Material:		
Conduit size or Tray or Duct width :		Cable tray / duct length:		Covers length:		
Section:		Identification no.		Ref. drawing:		
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1520.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
					<b>CONTR.</b>	<b>TECHNIP</b>
<b>1A - Prefabrication and Installation of supports</b>						
A1.	Cable trays or conduits supports	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Supports painting (and retouch, if any)	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1B - Installation of conduit</b>						
B1.	Conduits bodies and fittings installation & cleaning	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Conduit sealing	<input type="checkbox"/>	<input type="checkbox"/>			
B3.	Conduit alignment and plumbness	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C - Installation of trays / ducts</b>						
C1.	Cable trays / ducts installation (as per approved layout)	<input type="checkbox"/>	<input type="checkbox"/>			
C2.	Cable tray painting retouch.	<input type="checkbox"/>	<input type="checkbox"/>			
C3.	Cable separators installed properly.	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1D - Grounding</b>						
D1.	Grounding installed properly	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1E - Installation of covers</b>						
E1.	Cable tray / duct covers installation.	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1F - Final inspection</b>						
F1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>			
F2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
Note: A key plan showing the location of the cable tray / duct route shall be attached to this form.						
REMARKS :						
<b>1G - FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>		<b>TECHNIP</b>		<b>OWNER</b>
	<b>NAME</b>					
	<b>SIGNATURE</b>					
	<b>DATE</b>					

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 		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>			
QUALITY CONTROL FORM		ICF 010A	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>INSTRUMENT CABLES CONNECTION SUMMARY REPORT</b>		PROJ. No. 080557C001	REV. 0	SH. _1_OF _1_		
		CONTRACTOR:			ICF 010A N° _____	
<b>GENERAL DATA</b>						
Cable tag:						
Source equipment:						
Destination equipment:						
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1520.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
					<b>CONTR.</b>	<b>TECHNIP</b>
<b>1A - Source point check</b>						
A1.	Cables identification and segregation	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Terminal strips and wiring identification (core ferrule)	<input type="checkbox"/>	<input type="checkbox"/>			
A3.	Cable terminals execution and connection	<input type="checkbox"/>	<input type="checkbox"/>			
A4.	Screen connection	<input type="checkbox"/>	<input type="checkbox"/>			
A5.	Ground connection	<input type="checkbox"/>	<input type="checkbox"/>			
A6.	Cable fastening	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1B - Destination point check</b>						
B1.	Cables identification and segregation	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Terminal strips and wiring identification (core ferrule)	<input type="checkbox"/>	<input type="checkbox"/>			
B3.	Cable terminals execution and connection	<input type="checkbox"/>	<input type="checkbox"/>			
B4.	Screen connection	<input type="checkbox"/>	<input type="checkbox"/>			
B5.	Ground connection	<input type="checkbox"/>	<input type="checkbox"/>			
B6.	Cable fastening	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C - Final inspection</b>						
C1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>			
C2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
REMARKS :						
<b>1D - FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>		<b>TECHNIP</b>	<b>OWNER</b>	
	<b>NAME</b>					
	<b>SIGNATURE</b>					
	<b>DATE</b>					

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 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>			
QUALITY CONTROL FORM		ICF 026A		<b>CLIENT</b>			
<b>INSTRUMENT FIBER OPTIC INSTALLATION SUMMARY REPORT</b>		PROJ. No. 080557C001		REV. 0	SH. <u>  1  </u> OF <u>  2  </u>		
		CONTRACTOR:			ICF 026A N° _____		
<b>GENERAL DATA</b>							
<b>Cable Drum Identification (indicate the reference to QCF 006B N°):</b> QCF 006B N° _____							
<b>Cable tag / ID</b>							
<b>Fiber optic cable type:</b>		<input type="checkbox"/> Single Mode		<input type="checkbox"/> Multi Mode 62,5/125			
<b>Fiber q.ty and characteristics:</b>		<input type="checkbox"/> Multi Mode 50/125					
<b>Connected from:</b>							
<b>Connected to:</b>							
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1520.001)			<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>		
					<b>INSPECTOR SIGNATURE &amp; DATE</b>		
					<b>CONTR.</b>	<b>TECHNIP</b>	
<b>1A – Instrument Cable Drum Check</b>			<input type="checkbox"/>	<input type="checkbox"/>	ICF 006B (*)		
<b>1B - Cables Installation</b>			Results				
B1.	Cable fastening		<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Cable laying and segregation See note (1)		<input type="checkbox"/>	<input type="checkbox"/>			
B3.	Cable Joint box and pit installation (where applicable)		<input type="checkbox"/>	<input type="checkbox"/>			
B4.	Grounding		<input type="checkbox"/>	<input type="checkbox"/>			
B5.	Bonding		<input type="checkbox"/>	<input type="checkbox"/>			
B6.	Insulation (Megger) 500 VDC values See notes (2) (3)	A/G	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C - Cables Test</b>			Results				
C1.	Fiber optic cables attenuation value in dB/km	MM	@850nm	<input type="checkbox"/>	<input type="checkbox"/>		
C2.			@1300nm	<input type="checkbox"/>	<input type="checkbox"/>		
C3.	See notes (4) (5) (6) (7)	SM	@1310nm	<input type="checkbox"/>	<input type="checkbox"/>		
C4.			@1550nm	<input type="checkbox"/>	<input type="checkbox"/>		
C5.	Optical length See notes (4) (5) (7)		<input type="checkbox"/>	<input type="checkbox"/>			
C6.	Attenuation point discontinuity See notes (4) (5) (7) (8)		<input type="checkbox"/>	<input type="checkbox"/>			
<b>1D - Cables Check</b>			Results				
D1.	Cable type and size		<input type="checkbox"/>	<input type="checkbox"/>			
D2.	Cable labelling and identification (each.....m)		<input type="checkbox"/>	<input type="checkbox"/>			
<b>REMARKS:</b>							

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 		<b>PROJECT</b> <b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>				
<b>QUALITY CONTROL FORM</b> ICF 027A		<b>CLIENT</b> <b>INDIAN OIL CORPORATION LIMITED</b>				
<b>INSTRUMENT FIBER OPTIC CABLES SPLICING AND TERMINATION SUMMARY REPORT</b>		PROJ. No. 080557C001	REV. 0	SH. _1_OF _2_		
		CONTRACTOR:		ICF 027A N° _____		
<b>GENERAL DATA</b>						
Cable tag / ID						
Fiber optic cable type:		<input type="checkbox"/> Single Mode	<input type="checkbox"/> Multi Mode 62,5/125	<input type="checkbox"/> Multi Mode 50/125		
Fiber q.ty and characteristics:						
Connected from:						
Connected to:						
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1520.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
					<b>CONTR.</b>	<b>TECHNIP</b>
<b>1A - Installation</b>		Results				
A1.	Preliminary trench survey inspection for U/G Fiber Optic cables splicing on site; bed preparation check		<input type="checkbox"/>	<input type="checkbox"/>		
A2.	F.O. Cables marking		<input type="checkbox"/>	<input type="checkbox"/>		
A3.	F.O. Fibers identification & splicing		<input type="checkbox"/>	<input type="checkbox"/>		
A4.	Grounding		<input type="checkbox"/>	<input type="checkbox"/>		
A5.	Bonding		<input type="checkbox"/>	<input type="checkbox"/>		
A6.	Insulation (Megger) 500 VDC values see notes (1) (2)	A/G	<input type="checkbox"/>	<input type="checkbox"/>		
<b>1B - Check</b>		Results				
B1.	Fibers splicing executed		<input type="checkbox"/>	<input type="checkbox"/>		
B2.	F.O. Termination and connection on patch panel		<input type="checkbox"/>	<input type="checkbox"/>		
<b>1C - Test</b>		Results				
C1.	Fiber optic cables attenuation value in dB/km	MM	@850nm	<input type="checkbox"/>	<input type="checkbox"/>	
C2.			@1300nm	<input type="checkbox"/>	<input type="checkbox"/>	
C3.	See notes (4) (5) (6) (7)	SM	@1310nm	<input type="checkbox"/>	<input type="checkbox"/>	
C4.			@1550nm	<input type="checkbox"/>	<input type="checkbox"/>	
C5.	Optical length See notes (4) (5) (7)		<input type="checkbox"/>	<input type="checkbox"/>		
C6.	Attenuation point discontinuity See notes (4) (5) (7) (8)		<input type="checkbox"/>	<input type="checkbox"/>		
C7.	Splice attenuation See notes (4) (5) (7) (9)		<input type="checkbox"/>	<input type="checkbox"/>		
C8.	Connector loss (per pair) See notes (4) (5) (7) (10)		<input type="checkbox"/>	<input type="checkbox"/>		
C9.	Connector return loss See notes (4) (5) (7) (11)		<input type="checkbox"/>	<input type="checkbox"/>		
C10.	Total attenuation See note (3)		<input type="checkbox"/>	<input type="checkbox"/>		
C11.	Continuity check See note (3)		<input type="checkbox"/>	<input type="checkbox"/>		
C12.	Polarity check See note (3)		<input type="checkbox"/>	<input type="checkbox"/>		

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – FIELD INSTRUMENTATION WORKS</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1530-001	<b>Rev. No.</b> 0	Page 1 of 20

**QUALITY CONTROL PLAN - INSTRUMENTATION & COMMUNICATION  
SYSTEM INSTALLATION**

**FIELD INSTRUMENTATION WORKS**

TYPE OF QUALITY CONTROL REPORT	CERTIFICATION EXTENT
ICF-001U	“U” Unpacking
ICF-005A; ICF-011A; ICF-012A; ICF-013A; ICF-015A; ICF-020A; ICF-022A; ICF-023A; ICF-028A; ICF-029A; ICF-034A; ICF-036A; ICF-037A; ICF-038A	“A” Bench Test & Installation
ICF-039A	Final Inspection Report

**REFERENCE DOCUMENTS:**

- 080557C-000-STC-1590-001                      Installation Standards
- 080557C-000-JSS-1590-001                      Job Specification for Instrumentation Installation Works
- 080557C-000-PP-805                                Site Co-ordination

**LEGENDS**

- H = HOLD (Work Stop for Inspection- RFI required)  
W = WITNESS (RFI required)  
WC = 100% SUPERVISION AND EXAMINATION BY CONTRACTOR  
S = SURVEILLANCE (NO RFI)  
R = REVIEW of QC REPORTS  
N/A = NOT APPLICABLE  
P = PREPARATION  
A = DOCUMENT APPROVAL  
IFA = ISSUED FOR APPROVAL / AUTHORIZATION  
! = WARNING (Control of document revision status)  
INFO = FOR INFORMATION  
N.A. = NOT ACCEPTED  
ACC. = ACCEPTED

REV.	DATE	STATUS	WRITTEN BY (name & visa)	CHECKED BY (name & visa)	APPROVED BY (name & visa)	AUTHOR. BY (name & visa)
0	14-10-2019	ISSUED FOR IMPLEMENTATION	 Gairindraj Subramanian- External 2019.10.14 16:43:46 +05'30'	 Shyamoundar Kanthalurajan 2019.10.18 10:40:11 +05'30'	 Sram Sankaranarayanan 2019.10.21 16:06:43 +05'30'	 Morischristopher Jesumarian 2019.11.01 13:20:58 +05'30'
<b>DOCUMENT REVISIONS</b>						

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP - INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION - FIELD INSTRUMENTATION WORKS</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1530-001	<b>Rev. No.</b> 0	Page 2 of 20

## QUALITY CONTROL PLAN

### INSTRUMENTATION AND COMMUNICATION SYSTEM INSTALLATION

#### FIELD INSTRUMENTATION WORKS

#### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
<b>A</b>	<b>PRELIMINARY ACTIVITIES</b>				
A1	CHECK OF CONTRACTOR DRAWINGS REVISION STATUS	N/A	<b>!</b>	<b>!</b>	
A2	CHECK OF CONTRACTOR TECHNICAL SPECIFICATION AND PROCEDURE	N/A	IFA	A	
A3	CONTRACTOR'S METHOD STATEMENT (IF REQUIRED)	N/A	IFA	A	(1)
A4	AVAILABILITY OF VENDOR INSTALLATION MANUAL, DRAWING AND DOCUMENTATION	N/A	WC	R	(1)
<b>B</b>	<b>UNPACKING</b>				
B1	MATERIAL IDENTIFICATION AND CONSERVATION STATUS (FOR BOTH LOOSE AND PREASSEMBLED MATERIALS) UNPACKING VISUAL INSPECTION	ICF-001U	WC	W/R	
B2	CHECK OF FF MARK	ICF-001U	WC	W/R	
<b>C</b>	<b>BENCH TEST &amp; INSTALLATION</b>				
C1	<b>ELECTRONIC FLOW TRANSMITTERS DIFFERENTIAL PRESSURE TYPE</b>				
C1.1	<b>Field Instrument Calibration Test</b>				
C1.1A	Check	ICF-005A	WC	W/R	
C1.1B	Signal Calibration	ICF-005A	WC	W/R	
C1.1C	Final inspection	ICF-005A	WC	W/R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP - INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION - FIELD INSTRUMENTATION WORKS</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1530-001	<b>Rev. No.</b> 0	Page 3 of 20

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C1.2	<b>Field instrument Installation</b>				
C1.2A	Installation of supports	ICF-005A	WC	W/R	
C1.2B	Secondary Cable tray installation	ICF-005A	WC	W/R	
C1.2C	Signal cable installation, wiring and instrument grounding, cable gland installation	ICF-005A	WC	W/R	
C1.2D	Installation of instrument	ICF-005A	WC	W/R	
C1.2E	Instrument Check	ICF-005A	WC	W/R	
C1.2F	Final inspection	ICF-005A	WC	W/R	
C1.3	<b>Instrument Impulse Line Pressure Test</b>				
C1.3A	Ferrules Installation	ICF-005A	WC	W/R	
C1.3B	Tubing/Piping Test, Prefabricated Hook-up Pressure Test	ICF-005A	WC	W/R	
C1.3C	Final inspection	ICF-005A	WC	W/R	
C1.4A	<b>Final Documentation Review</b>	ICF-005A	P	R	
C1.4B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C2	<b>FLOW INSTRUMENTS PURGE SYSTEM</b>				
C2.1	<b>Field instrument Installation</b>				
C2.1A	Installation of support	ICF-012A	WC	W/R	
C2.1B	Installation of instrument	ICF-012A	WC	W/R	
C2.1C	Check	ICF-012A	WC	W/R	
C2.1D	Final inspection	ICF-012A	WC	W/R	
C2.2	<b>Instrument Impulse Line Pressure Test</b>				

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	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP - INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION - FIELD INSTRUMENTATION WORKS</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1530-001	<b>Rev. No.</b> 0	Page 4 of 20

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C2.2A	Ferrules Installation	ICF-012A	WC	W/R	
C2.2B	Tubing/Piping Test, Prefabricated Hook-up Pressure Test	ICF-012A	WC	W/R	
C2.2C	Final inspection	ICF-012A	WC	W/R	
C2.3A	<b>Final Documentation Review</b>	ICF-012A	P	R	
C3	<b>FLOW INSTRUMENTS STEAM / ELECTRICAL TRACING</b>				
C3.1A	Installation	ICF-029A	WC	W/R	
C3.1B	Check	ICF-029A	WC	W/R	
C3.1C	Final inspection	ICF-029A	WC	W/R	
C3.1D	Final Documentation Review	ICF-029A	P	R	
C4	<b>ELECTRONIC LEVEL TRANSMITTERS DISPLACEMENT TYPE</b>				
C4.1	<b>Field Instrument Calibration Test</b>				
C4.1A	Check	ICF-020A	WC	W/R	
C4.1B	Signal Calibration	ICF-020A	WC	W/R	
C4.1C	Final inspection	ICF-020A	WC	W/R	
C4.2	<b>Field instrument Installation</b>				
C4.2A	Installation of supports	ICF-020A	WC	W/R	
C4.2B	Secondary Cable tray installation	ICF-020A	WC	W/R	
C4.2C	Signal cable installation, wiring and instrument grounding, cable gland installation	ICF-020A	WC	W/R	
C4.2D	Installation of instrument	ICF-020A	WC	W/R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP - INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION - FIELD INSTRUMENTATION WORKS</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1530-001	<b>Rev. No.</b> 0	Page 5 of 20

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C4.2E	Instrument Check	ICF-020A	WC	W/R	
C4.2F	Final inspection	ICF-020A	WC	W/R	
C4.3A	<b>Final Documentation Review</b>	ICF-020A	P	R	
C4.4A	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C5	<b>LEVEL GAUGES</b>				
C5.1A	Installation of support	ICF-013A	WC	W/R	
C5.1D	Installation of instrument	ICF-013A	WC	W/R	
C5.1E	Check	ICF-013A	WC	W/R	
C5.1F	Final inspection	ICF-013A	WC	W/R	
C5.1G	Final Documentation Review	ICF-013A	P	R	
C6	<b>ELECTRONIC LEVEL INSTRUMENTS DIFFERENTIAL PRESSURE TYPE</b>				
C6.1	<b>Field Instrument Calibration Test</b>				
C6.1A	Check	ICF-005A	WC	W/R	
C6.1B	Signal Calibration	ICF-005A	WC	W/R	
C6.1C	Final inspection	ICF-005A	WC	W/R	
C6.2	<b>Field instrument Installation</b>				
C6.2A	Installation of supports	ICF-005A	WC	W/R	
C6.2B	Secondary Cable tray installation	ICF-005A	WC	W/R	
C6.2C	Signal cable installation, wiring and instrument grounding, cable gland installation	ICF-005A	WC	W/R	
C6.2D	Installation of instrument	ICF-005A	WC	W/R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP - INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION - FIELD INSTRUMENTATION WORKS</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1530-001	<b>Rev. No.</b> 0	Page 6 of 20

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C6.2E	Instrument Check	ICF-005A	WC	W/R	
C6.2F	Final inspection	ICF-005A	WC	W/R	
C6.3	<b>Instrument Impulse Line Pressure Test</b>				
C6.3A	Ferrules Installation	ICF-005A	WC	W/R	
C6.3B	Tubing/Piping Test, Prefabricated Hook-up Pressure Test	ICF-005A	WC	W/R	
C6.3C	Final inspection	ICF-005A	WC	W/R	
C6.4A	<b>Final Documentation Review</b>	ICF-005A	P	R	
C6.4B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C7	<b>INSTALLATION OF FLOAT TYPE LEVEL INDICATORS</b>				
C7.1	<b>Tank Gauging System Installation</b>				
C7.1A	Mechanical installation	ICF-015A	WC	W/R	
C7.1B	Electrical connection	ICF-015A	WC	W/R	
C7.1C	Instrument Check	ICF-015A	WC	W/R	
C7.1D	Final inspection	ICF-015A	WC	W/R	
C7.1E	Final Documentation Review	ICF-015A	P	R	
C7.1F	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C8	<b>TANK -GAUGING</b>				
C8.1	<b>Tank Gauging System Installation</b>				
C8.1A	Mechanical installation	ICF-015A	WC	W/R	
C8.1B	Electrical connection	ICF-015A	WC	W/R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP - INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION - FIELD INSTRUMENTATION WORKS</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1530-001	<b>Rev. No.</b> 0	Page 7 of 20

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C8.1C	Instrument Check	ICF-015A	WC	W/R	
C8.1D	Final inspection	ICF-015A	WC	W/R	
C8.1E	Final Documentation Review	ICF-015A	P	R	
C8.1F	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C9	<b>LEVEL SWITCHES</b>				
C9.1	<b>Instrument Switches Calibration</b>				
C9.1A	Contact Check	ICF-022A	WC	W/R	
C9.1B	Set Point Calibration	ICF-022A	WC	W/R	
C9.1C	Final inspection	ICF-022A	WC	W/R	
C9.2	<b>Field instrument Installation</b>				
C9.2A	Installation of supports	ICF-022A	WC	W/R	
C9.2B	Secondary Cable tray installation	ICF-022A	WC	W/R	
C9.2C	Signal cable installation, wiring and instrument grounding, cable gland installation	ICF-022A	WC	W/R	
C9.2D	Installation of instrument	ICF-022A	WC	W/R	
C9.2E	Instrument Check	ICF-022A	WC	W/R	
C9.2F	Final inspection	ICF-022A	WC	W/R	
C9.3A	<b>Final Documentation Review</b>	ICF-022A	P	R	
C9.3B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C10	<b>LEVEL INSTRUMENTS PURGE SYSTEM</b>				
C10.1	<b>Field instrument Installation</b>				

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP - INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION - FIELD INSTRUMENTATION WORKS</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1530-001	<b>Rev. No.</b> 0	Page 8 of 20

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C10.1A	Installation of support	ICF-012A	WC	W/R	
C10.1B	Installation of instrument	ICF-012A	WC	W/R	
C10.1C	Check	ICF-012A	WC	W/R	
C10.1D	Final inspection	ICF-012A	WC	W/R	
C10.2	<b>Instrument Impulse Line Pressure Test</b>				
C10.2A	Ferrules Installation	ICF-012A	WC	W/R	
C10.2B	Tubing/Piping Test, Prefabricated Hook-up Pressure Test	ICF-012A	WC	W/R	
C10.2C	Final inspection	ICF-012A	WC	W/R	
C10.3A	<b>Final Documentation Review</b>	ICF-012A	P	R	
C11	<b>SPECIAL (NUCLEAR, RADAR) LEVEL INSTRUMENTS</b>				
C11.1	<b>Field instrument Installation</b>				
C11.2A	Installation of supports	ICF-013A	WC	W/R	
C11.2B	Secondary Cable tray installation	ICF-013A	WC	W/R	
C11.2C	Signal cable installation, wiring and instrument grounding, cable gland installation	ICF-013A	WC	W/R	
C11.2D	Installation of instrument	ICF-013A	WC	W/R	
C11.2E	Instrument Check	ICF-013A	WC	W/R	
C11.2F	Final inspection	ICF-013A	WC	W/R	
C11.1G	Final Documentation Review	ICF-013A	P	R	
C11.1H	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C12	<b>LEVEL INSTRUMENTS STEAM / ELECTRICAL TRACING</b>				

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			CONTR.	TECHNIP	
C12.1A	Installation	ICF-029A	WC	W/R	
C12.1B	Check	ICF-029A	WC	W/R	
C12.1C	Final inspection	ICF-029A	WC	W/R	
C12.1D	Final Documentation Review	ICF-029A	P	R	
C13A	<b>ELECTRONIC PRESSURE TRANSMITTERS</b>				
C13A.1	<b>Field Instrument Calibration Test</b>				
C13A.1A	Check	ICF-005A	WC	W/R	
C13A.1B	Signal Calibration	ICF-005A	WC	W/R	
C13A.1C	Final inspection	ICF-005A	WC	W/R	
C13A.2	<b>Field instrument Installation</b>				
C13A.2A	Installation of supports	ICF-005A	WC	W/R	
C13A.2B	Secondary Cable tray installation	ICF-005A	WC	W/R	
C13A.2C	Signal cable installation, wiring and instrument grounding, cable gland installation	ICF-005A	WC	W/R	
C13A.2D	Installation of instrument	ICF-005A	WC	W/R	
C13A.2E	Instrument Check	ICF-005A	WC	W/R	
C13A.2F	Final inspection	ICF-005A	WC	W/R	
C13A.3	<b>Instrument Impulse Line Pressure Test</b>				
C13A.3A	Ferrules Installation	ICF-005A	WC	W/R	
C13A.3B	Tubing/Piping Test, Prefabricated Hook-up Pressure Test	ICF-005A	WC	W/R	
C13A.3C	Final inspection	ICF-005A	WC	W/R	
C13A.4A	<b>Final Documentation Review</b>	ICF-005A	P	R	

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			CONTR.	TECHNIP	
C13A.4B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C14	<b>LOCAL PRESSURE GAUGES</b>				
C14.1	<b>Field Instrument Calibration Test</b>				
C14.1A	Check	ICF-005A	WC	W/R	
C14.1B	Signal Calibration	ICF-005A	WC	W/R	
C14.1C	Final inspection	ICF-005A	WC	W/R	
C14.2	<b>Field instrument Installation</b>				
C14.2A	Installation of supports	ICF-005A	WC	W/R	
C14.2D	Installation of instrument	ICF-005A	WC	W/R	
C14.2E	Instrument Check	ICF-005A	WC	W/R	
C14.2F	Final inspection	ICF-005A	WC	W/R	
C14.3	<b>Instrument Impulse Line Pressure Test (if any)</b>				
C14.3A	Ferrules Installation (if any)	ICF-005A	WC	W/R	
C14.3B	Tubing/Piping Test, Prefabricated Hook-up Pressure Test (if any)	ICF-005A	WC	W/R	
C14.3C	Final inspection (if any)	ICF-005A	WC	W/R	
C14.4A	<b>Final Documentation Review</b>	ICF-005A			
C15	<b>DRAFT GAUGES</b>				
C15.1	<b>Field Instrument Calibration Test</b>				
C15.1A	Check	ICF-005A	WC	W/R	
C15.1B	Signal Calibration	ICF-005A	WC	W/R	

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			CONTR.	TECHNIP	
C15.1C	Final inspection	ICF-005A	WC	W/R	
C15.2	<b>Field instrument Installation</b>				
C15.2A	Installation of supports	ICF-005A	WC	W/R	
C15.2D	Installation of instrument	ICF-005A	WC	W/R	
C15.2E	Instrument Check	ICF-005A	WC	W/R	
C15.2F	Final inspection	ICF-005A	WC	W/R	
C15.3	<b>Instrument Impulse Line Pressure Test</b>				
C15.3A	Ferrules Installation	ICF-005A	WC	W/R	
C15.3B	Tubing/Piping Test, Prefabricated Hook-up Pressure Test	ICF-005A	WC	W/R	
C15.3C	Final inspection	ICF-005A	WC	W/R	
C15.4A	<b>Final Documentation Review</b>	ICF-005A	P	R	
C16	<b>PRESSURE INSTRUMENTS PURGE SYSTEM</b>				
C16.1	<b>Field instrument Installation</b>				
C16.1A	Installation of support	ICF-012A	WC	W/R	
C16.1B	Installation of instrument	ICF-012A	WC	W/R	
C16.1C	Check	ICF-012A	WC	W/R	
C16.1D	Final inspection	ICF-012A	WC	W/R	
C16.2	<b>Instrument Impulse Line Pressure Test</b>				
C16.2A	Ferrules Installation	ICF-012A	WC	W/R	
C16.2B	Tubing/Piping Test, Prefabricated Hook-up Pressure Test	ICF-012A	WC	W/R	
C16.2C	Final inspection	ICF-012A	WC	W/R	

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			CONTR.	TECHNIP	
C16.3A	<b>Final Documentation Review</b>	ICF-012A			
C17	<b>PRESSURE INSTRUMENTS STEAM / ELECTRICAL TRACING</b>				
C17.1A	Installation	ICF-029A	WC	W/R	
C17.1B	Check	ICF-029A	WC	W/R	
C17.1C	Final inspection	ICF-029A	WC	W/R	
C17.1D	Final Documentation Review	ICF-029A	P	R	
C18	<b>THERMOELEMENTS AND THERMOWELLS</b>				
C18.1	<b>Field Instrument Calibration Test</b>				
C18.1A	Check	ICF-020A	WC	W/R	
C18.1B	Signal Calibration	ICF-020A	WC	W/R	
C18.1C	Final inspection	ICF-020A	WC	W/R	
C18.2	<b>Field instrument Installation</b>				
C18.2A	Installation of supports	ICF-020A	WC	W/R	
C18.2B	Secondary Cable tray installation	ICF-020A	WC	W/R	
C18.2C	Signal cable installation, wiring and instrument grounding, cable gland installation	ICF-020A	WC	W/R	
C18.2D	Installation of instrument	ICF-020A	WC	W/R	
C18.2E	Instrument Check	ICF-020A	WC	W/R	
C18.2F	Final inspection	ICF-020A	WC	W/R	
C18.3A	<b>Final Documentation Review</b>	ICF-020A	P	R	
C18.3B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)

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			CONTR.	TECHNIP	
C19	<b>ELECTRONIC TEMPERATSURE TRANSMITTERS / CONVERTERS</b>				
C19.1	<b>Field Instrument Calibration Test</b>				
C19.1A	Check	ICF-020A	WC	W/R	
C19.1B	Signal Calibration	ICF-020A	WC	W/R	
C19.1C	Final inspection	ICF-020A	WC	W/R	
C19.2	<b>Field instrument Installation</b>				
C19.2A	Installation of supports	ICF-020A	WC	W/R	
C19.2B	Secondary Cable tray installation	ICF-020A	WC	W/R	
C19.2C	Signal cable installation, wiring and instrument grounding, cable gland installation	ICF-020A	WC	W/R	
C19.2D	Installation of instrument	ICF-020A	WC	W/R	
C19.2E	Instrument Check	ICF-020A	WC	W/R	
C19.2F	Final inspection	ICF-020A	WC	W/R	
C19.3A	<b>Final Documentation Review</b>	ICF-020A	P	R	
C19.3B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C20	<b>THERMOMETERS AND WELLS</b>				
C20.1	<b>Field Instrument Calibration Test</b>				
C20.1A	Check	ICF-020A	WC	W/R	
C20.1B	Signal Calibration	ICF-020A	WC	W/R	
C20.1C	Final inspection	ICF-020A	WC	W/R	
C20.2	<b>Field instrument Installation</b>				

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Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C20.2A	Installation of support	ICF-020A	WC	W/R	
C20.2D	Installation of instrument	ICF-020A	WC	W/R	
C20.2E	Check	ICF-020A	WC	W/R	
C20.2F	Final inspection	ICF-020A	WC	W/R	
C20.3A	<b>Final Documentation Review</b>	ICF-020A	P	R	
C21	<b>TEMPERATURE SYSTEMS INSTALLATION ON TANK</b>				
C21.1	<b>Field Instrument Calibration Test</b>				
C21.1A	Check	ICF-020A	WC	W/R	
C21.1B	Signal Calibration	ICF-020A	WC	W/R	
C21.1C	Final inspection	ICF-020A	WC	W/R	
C21.2	<b>Field instrument Installation</b>				
C21.2A	Installation of support	ICF-020A	WC	W/R	
C21.2D	Installation of instrument	ICF-020A	WC	W/R	
C21.2E	Check	ICF-020A	WC	W/R	
C21.2F	Final inspection	ICF-020A	WC	W/R	
C21.3A	<b>Final Documentation Review</b>	ICF-020A	P	R	
C21.3B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C22	<b>ON-LINE ELECTRONIC TRANSMITTERS</b>				
C22.1	<b>Field Instrument Calibration Test</b>				
C22.1A	Check	ICF-034A	WC	W/R	
C22.1B	Signal Calibration	ICF-034A	WC	W/R	

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Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C22.1C	Final inspection	ICF-034A	WC	W/R	
C22.2	<b>Field instrument Installation</b>				
C22.2A	Installation of supports	ICF-034A	WC	W/R	
C22.2B	Secondary Cable tray installation	ICF-034A	WC	W/R	
C22.2C	Signal cable installation, wiring and instrument grounding, cable gland installation	ICF-034A	WC	W/R	
C22.2D	Installation of instrument	ICF-034A	WC	W/R	
C22.2E	Instrument Check	ICF-034A	WC	W/R	
C22.2F	Final inspection	ICF-034A	WC	W/R	
C22.3	<b>On-Line Flow Instrument Installation</b>				
C22.3A	Mechanical installation	ICF-034A	WC	W/R	
C22.3B	Electrical connection	ICF-034A	WC	W/R	
C22.3C	Pneumatic connection	ICF-034A	WC	W/R	
C22.3D	Final inspection	ICF-034A	WC	W/R	
C22.4A	<b>Final Documentation Review</b>	ICF-034A	P	R	
C22.4B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C23	<b>ON-LINE INDICATORS OR TOTALIZERS</b>				
C23.1A	Mechanical installation	ICF-011A	WC	W/R	
C23.1B	Electrical connection	ICF-011A	WC	W/R	
C23.1C	Pneumatic connection	ICF-011A	WC	W/R	
C23.1D	Final inspection	ICF-011A	WC	W/R	
C23.1E	Final Documentation Review	ICF-011A	P	R	

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Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C24	<b>ON-LINE SPECIAL ELECTRONIC TRANSMITTERS</b>				
C24.1	<b>Field Instrument Calibration Test</b>				
C24.1A	Check	ICF-034A	WC	W/R	
C24.1B	Signal Calibration	ICF-034A	WC	W/R	
C24.1C	Final inspection	ICF-034A	WC	W/R	
C24.2	<b>Field instrument Installation</b>				
C24.2A	Installation of supports	ICF-034A	WC	W/R	
C24.2B	Secondary Cable tray installation	ICF-034A	WC	W/R	
C24.2C	Signal cable installation, wiring and instrument grounding, cable gland installation	ICF-034A	WC	W/R	
C24.2D	Installation of instrument	ICF-034A	WC	W/R	
C24.2E	Instrument Check	ICF-034A	WC	W/R	
C24.2F	Final inspection	ICF-034A	WC	W/R	
C24.3	<b>On-Line Flow Instrument Installation</b>				
C24.3A	Mechanical installation	ICF-034A	WC	W/R	
C24.3B	Electrical connection	ICF-034A	WC	W/R	
C24.3C	Pneumatic connection	ICF-034A	WC	W/R	
C24.3D	Final inspection	ICF-034A	WC	W/R	
C24.4A	<b>Final Documentation Review</b>	ICF-034A	P	R	
C24.4B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C25A	<b>CONTROL AND ON-OFF VALVES (PNEUM)</b>				

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Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C25A.1	<b>Control/On-Off Valves, Dampers and Actuators Calibration</b>				
C25A.1A	Inspection	ICF-036A	WC	W/R	
C25A.1B	Calibration	ICF-036A	WC	W/R	
C25A.1C	Final inspection	ICF-036A	WC	W/R	
C25A.2	<b>Control Valve and On-Off Valves Installation</b>				
C25A.2A	Installation	ICF-036A	WC	W/R	
C25A.2B	Connection	ICF-036A	WC	W/R	
C25A.2C	Check	ICF-036A	WC	W/R	
C25A.2D	Final inspection	ICF-036A	WC	W/R	
C25A.3	<b>Instrument Air Supply / Pneumatic Signal Connection</b>				
C25A.3A	Air tubing Installation	ICF-036A	WC	W/R	
C25A.3B	Air Tap Check	ICF-036A	WC	W/R	
C25A.3C	Air Tubing Test	ICF-036A	WC	W/R	
C25A.3D	Final inspection	ICF-036A	WC	W/R	
C25A.4A	<b>Final Documentation Review</b>	ICF-036A	P	R	
C25A.4B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C25B	<b>CONTROL AND ON-OFF VALVES (MOV)</b>				
C25B.1	<b>Control/On-Off Valves, Dampers and Actuators Calibration</b>				
C25B.1A	Inspection	ICF-037A	WC	W/R	
C25B.1B	Calibration	ICF-037A	WC	W/R	

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			CONTR.	TECHNIP	
C25B.1C	Final inspection	ICF-037A	WC	W/R	
C25B.2	<b>Motor Operated Valve – Instrument Installation</b>				
C25B.2A	Installation	ICF-037A	WC	W/R	
C25B.2B	Connection	ICF-037A	WC	W/R	
C25B.2C	Check	ICF-037A	WC	W/R	
C25B.2D	Final Inspection	ICF-037A	WC	W/R	
C25B.3A	<b>Final Documentation Review</b>	ICF-037A	P	R	
C25B.3B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C26	<b>I/P OR P/I CONVERTERS-SOLENOID VALVES</b>				
C26.1	<b>Instrument Controllers &amp; Receivers Calibration</b>				
C26.1A	Check	ICF-028A	WC	W/R	
C26.1B	Signal Calibration	ICF-028A	WC	W/R	
C26.1C	Final inspection	ICF-028A	WC	W/R	
C26.2	<b>Field instrument Installation</b>				
C26.2A	Installation of supports	ICF-028A	WC	W/R	
C26.2B	Secondary Cable tray installation	ICF-028A	WC	W/R	
C26.2C	Signal cable installation, wiring and instrument grounding, cable gland installation	ICF-028A	WC	W/R	
C26.2D	Installation of instrument	ICF-028A	WC	W/R	
C26.2E	Instrument Check	ICF-028A	WC	W/R	
C26.2F	Final inspection	ICF-028A	WC	W/R	

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			CONTR.	TECHNIP	
C26.3	<b>Instrument Air Supply / Pneumatic Signal Connection</b>				
C26.3A	Air tubing Installation	ICF-028A	WC	W/R	
C26.3B	Air Tap Check	ICF-028A	WC	W/R	
C26.3C	Air Tubing Test	ICF-028A	WC	W/R	
C26.3D	Final inspection	ICF-028A	WC	W/R	
C26.4A	<b>Final Documentation Review</b>	ICF-028A	P	R	
C26.4B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C27	<b>SELF ACTUATED PRESSURE REDUCING VALVES</b>				
C27.1A	Installation	ICF-023A	WC	W/R	
C27.1B	Connection	ICF-023A	WC	W/R	
C27.1C	Check	ICF-023A	WC	W/R	
C27.1D	Final inspection	ICF-023A	WC	W/R	
C27.1E	Final Documentation Review	ICF-023A	P	R	
C28	<b>PUSH BUTTONS, LIMIT SWITCHES AND SELECTORS</b>				
C28.1	<b>Instrument Switches Calibration</b>				
C28.1A	Contact Check	ICF-022A	WC	W/R	
C28.1B	Set Point Calibration	ICF-022A	WC	W/R	
C28.1C	Final inspection	ICF-022A	WC	W/R	
C28.2	<b>Field instrument Installation</b>				

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP - INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION - FIELD INSTRUMENTATION WORKS</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1530-001	<b>Rev. No.</b> 0	Page 20 of 20

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C28.2A	Installation of supports	ICF-022A	WC	W/R	
C28.2B	Secondary Cable tray installation	ICF-022A	WC	W/R	
C28.2C	Signal cable installation, wiring and instrument grounding, cable gland installation	ICF-022A	WC	W/R	
C28.2D	Installation of instrument	ICF-022A	WC	W/R	
C28.2E	Instrument Check	ICF-022A	WC	W/R	
C28.2F	Final inspection	ICF-022A	WC	W/R	
C28.3A	<b>Final Documentation Review</b>	ICF-022A	P	R	
C28.3B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)

## GENERAL NOTES

1 THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THE JOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY TECHNIP AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN- CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF TECHNIP HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.

2 CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT TO TECHNIP/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.

**NOTES:** (1) A COPY OF THE DOCUMENT WILL BE DELIVERED TO COMPANY FOR INFORMATION  
(2) TO BE FILED AS PART OF LOOP CHECK FOLDERS





**PROJECT**

**Standby SRU & Additional Tanks  
IOCL Paradip Refinery**

QUALITY CONTROL FORM

**ICF 005A**

**CLIENT**

**INDIAN OIL CORPORATION  
LIMITED**

**FIELD INSTRUMENT CALIBRATION, INSTALLATION  
AND IMPULSE LINE PRESSURE TESTSUMMARY REPORT**

PROJ. No. 080557C001

REV. 0

SH. \_1\_ OF \_2\_

CONTRACTOR:

**ICF 005A N° \_\_\_\_\_**

**GENERAL DATA**

<b>Tag/ Identification</b>		Instrument pattern tag:	
MR/P.O. No.:		Hook Up Standard:	
Instrument type (1)		Ref. drawing:	
Manufacturer		P & ID	
Model No/ Serial No.:		Operating pressure (Kg/Cm2g)	
F.F DATA	Field Device TAG	Test Media	
	Node Address:	Test pressure (Kg/Cm2g)	
	Engineering Range / Unit:	Rev:	
OPER ATION	Calibr. Range:		
	Output signal:		
	Accuracy:		
Mode (Analogue/Digital):			

INSPECTIONS / CHECK (Ref. to QCP 1530.001)			N.A.	ACC.	Report / Reference	INSPECTOR SIGNATURE & DATE	
						CONTR.	TECHNIP
<b>1A- Check</b>			Results				
A1.	Instrument supply		<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Overrange protection		<input type="checkbox"/>	<input type="checkbox"/>			
A3.	Zero suppression		<input type="checkbox"/>	<input type="checkbox"/>			
A4.	Zero elevation		<input type="checkbox"/>	<input type="checkbox"/>			
<b>1B- Signal Calibration</b>			Results				
B1.	Input Signal	0% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B2.		25% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B3.		50% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B4.		75% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B5.		100% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B6.		75% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B7.		50% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B8.		25% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B9.		0% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C- Final Inspection</b>							
C1.	Final visual inspection		<input type="checkbox"/>	<input type="checkbox"/>			
C2.	As-built marked up copy updated and available		<input type="checkbox"/>	<input type="checkbox"/>			
<b>2A- Installation of support</b>							
A1.	Support prefabrication		<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Support installation		<input type="checkbox"/>	<input type="checkbox"/>			
<b>2B-Secondary cable tray Installation</b>			<input type="checkbox"/>	<input type="checkbox"/>			
<b>2C-Signal cable Installation, Wiring and Instrument Grounding, cable gland Installation</b>			<input type="checkbox"/>	<input type="checkbox"/>			
<b>2D - Installation of Instrument</b>							
D1.	Hook up installation including diaphragm seal (as applicable) complete and sealed		<input type="checkbox"/>	<input type="checkbox"/>			
D2.	Drains / vents		<input type="checkbox"/>	<input type="checkbox"/>			
D3.	Cable glands installed and tight		<input type="checkbox"/>	<input type="checkbox"/>			
D4.	TC / RTD fully inserted with gasket bolts and nuts tight		<input type="checkbox"/>	<input type="checkbox"/>			
D5.	Signal cable and cable tray install.		<input type="checkbox"/>	<input type="checkbox"/>			
D6.	Wiring and Grounding connection		<input type="checkbox"/>	<input type="checkbox"/>			

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 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
QUALITY CONTROL FORM		ICF 005A		<b>CLIENT</b>	
<b>FIELD INSTRUMENT CALIBRATION, INSTALLATION AND IMPULSE LINE PRESSURE TEST SUMMARY REPORT</b>		PROJ. No. 080557C001		REV. 0	SH. _2_ OF _2_
		CONTRACTOR:			ICF 005A N° _____
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1530.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>
					<b>CONTR.</b>
					<b>TECHNIP</b>
<b>2E – Instrument Check</b>					
E1.	Instrument installation and maintenance space check	<input type="checkbox"/>	<input type="checkbox"/>		
E2.	HP & LP connections check (including Impulse line and slope)	<input type="checkbox"/>	<input type="checkbox"/>		
E3.	Flow direction check	<input type="checkbox"/>	<input type="checkbox"/>		
E4.	Cable identification	<input type="checkbox"/>	<input type="checkbox"/>		
E5.	Wiring identification & connection	<input type="checkbox"/>	<input type="checkbox"/>		
E6.	Labeling	<input type="checkbox"/>	<input type="checkbox"/>		
<b>2F - Final inspection</b>					
F1.	Final visual insp. (including material & rating)	<input type="checkbox"/>	<input type="checkbox"/>		
F2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>		
<b>3A – Ferrules Installation</b>					
A1.	Ferrules inst. and tightening	<input type="checkbox"/>	<input type="checkbox"/>		
A2.	Slope and supports	<input type="checkbox"/>	<input type="checkbox"/>		
<b>3B – Tubing/Piping Test</b>					
B1.	Pressure test, Prefabricated Hook-up Pressure Test	<input type="checkbox"/>	<input type="checkbox"/>		
B2.	Tubing/piping blowing	<input type="checkbox"/>	<input type="checkbox"/>		
<b>3C - Final inspection</b>					
C1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>		
C2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>		
<b>Notes:</b> (1) Displacer level instrument, transmitters, transducers, pressure gauges, indicators, etc....					
<b>4A- FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>TECHNIP</b>	<b>OWNER</b>	
	<b>NAME</b>				
	<b>SIGNATURE</b>				
	<b>DATE</b>				



 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
QUALITY CONTROL FORM		ICF 012A		<b>CLIENT</b>		
<b>FIELD INSTRUMENT INSTALLATION AND IMPULSE LINE PRESSURE TEST SUMMARY REPORT</b>		PROJ. No. 080557C001		REV. 0	SH. __1__ OF __1__	
		CONTRACTOR:			ICF 012A N° _____	
<b>GENERAL DATA</b>						
<b>Tag / Identification:</b>		Operating pressure (Kg/Cm2g)				
MR/P.O.:		Test Media				
Manufacturer & Model:		Test pressure (Kg/Cm2g)				
Serial number:						
Hook Up Standard:						
Ref. drawing:						
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1530.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
					<b>CONTR.</b>	<b>TECHNIP</b>
<b>1A- Installation of support</b>						
A1.	Support prefabrication	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Support installation	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1B - Installation of Instrument</b>						
B1.	Hook up installation complete and sealed	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Drains / vents	<input type="checkbox"/>	<input type="checkbox"/>			
B3.	Cable glands installed and tight	<input type="checkbox"/>	<input type="checkbox"/>			
B4.	TC / RTD fully inserted with gasket bolts and nuts tight	<input type="checkbox"/>	<input type="checkbox"/>			
B5.	Signal cable and cable tray install.	<input type="checkbox"/>	<input type="checkbox"/>			
B6.	Wiring and Grounding connection	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C - Check</b>						
C1.	Instrument installation and maintenance space check	<input type="checkbox"/>	<input type="checkbox"/>			
C2.	HP & LP connections check (including Impulse line and slope)	<input type="checkbox"/>	<input type="checkbox"/>			
C3.	Flow direction check	<input type="checkbox"/>	<input type="checkbox"/>			
C4.	Cable identification	<input type="checkbox"/>	<input type="checkbox"/>			
C5.	Wiring identification & connection	<input type="checkbox"/>	<input type="checkbox"/>			
C6.	Labeling	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1D - Final inspection</b>						
D1.	Final visual inspection (including material & rating)	<input type="checkbox"/>	<input type="checkbox"/>			
D2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2A – Ferrules Installation</b>						
A1.	Ferrules inst. and tightening	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Slope and supports	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2B – Tubing/Piping Test</b>						
B1.	Pressure test, Prefabricated Hook-up Pressure Test	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Tubing/piping blowing	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2C - Final inspection</b>						
C1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>			
C2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
REMARKS :						
<b>3A - FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>		<b>TECHNIP</b>		<b>OWNER</b>
	NAME					
	SIGNATURE					
	DATE					

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 		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>			
QUALITY CONTROL FORM		ICF 013A	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>FIELD INSTRUMENT INSTALLATION SUMMARY REPORT</b>		PROJ. No. 080557C001	REV. 0	SH. __1__ OF __1__		
		CONTRACTOR:			ICF 013A N° _____	
<b>GENERAL DATA</b>						
<b>Tag / Identification:</b>						
MR/P.O.:						
Manufacturer & Model:						
Serial number:						
Hook Up Standard:						
Ref. drawing:						
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1530.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
					<b>CONTR.</b>	<b>TECHNIP</b>
<b>1A- Installation of support</b>						
A1.	Support prefabrication	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Support installation	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1B - Secondary cable tray Installation</b>		<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C - Signal cable Installation, Wiring and Instrument Grounding, cable gland Installation</b>		<input type="checkbox"/>	<input type="checkbox"/>			
<b>1D - Installation of Instrument</b>						
D1.	Hook up installation complete and sealed	<input type="checkbox"/>	<input type="checkbox"/>			
D2.	Drains / vents	<input type="checkbox"/>	<input type="checkbox"/>			
D3.	Cable glands installed and tight	<input type="checkbox"/>	<input type="checkbox"/>			
D4.	Availability of personnel safety equipment (like dosimeter)	<input type="checkbox"/>	<input type="checkbox"/>			
D5.	Procedure for safe handling of source during installation	<input type="checkbox"/>	<input type="checkbox"/>			
D6.	Signal cable and cable tray install.	<input type="checkbox"/>	<input type="checkbox"/>			
D7.	Wiring and Grounding connection	<input type="checkbox"/>	<input type="checkbox"/>			
D8.	Alignment of flanges, visibility of gauges and orientation of instrument	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1E - Check</b>						
E1.	Instrument installation and maintenance space check	<input type="checkbox"/>	<input type="checkbox"/>			
E2.	HP & LP connections check (including Impulse line and slope)	<input type="checkbox"/>	<input type="checkbox"/>			
E3.	Flow direction check / Flow requirements of cooling medium (if required)	<input type="checkbox"/>	<input type="checkbox"/>			
E4.	Type of illuminators for Transparent type Level Gauges suitable to area classification	<input type="checkbox"/>	<input type="checkbox"/>			
E5.	Cable identification	<input type="checkbox"/>	<input type="checkbox"/>			
E6.	Wiring identification & connection	<input type="checkbox"/>	<input type="checkbox"/>			
E7.	Labeling	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1F - Final inspection</b>						
F1.	Final visual inspection (including material & rating)	<input type="checkbox"/>	<input type="checkbox"/>			
F2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
REMARKS :						
<b>1G - FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>		<b>TECHNIP</b>		<b>OWNER</b>
	<b>NAME</b>					
	<b>SIGNATURE</b>					
	<b>DATE</b>					

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 		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>					
QUALITY CONTROL FORM		ICF 020A	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>				
<b>FIELD INSTRUMENT CALIBRATION AND INSTALLATION SUMMARY REPORT</b>		PROJ. No. 080557C001	REV. 0	SH. _1_ OF _2_				
		CONTRACTOR:		ICF 020A N° _____				
<b>GENERAL DATA</b>								
<b>Tag/ Identification</b>		Mode (Analogue/Digital):						
MR/P.O. No.:		Instrument pattern tag:						
Instrument type (1)		Hook Up Standard:						
Manufacturer		Ref. drawing:						
Model No/ Serial No.:		P & ID						
OPERATION DATA	Field Device TAG		Rev:					
	Node Address:							
	Engineering Range / Unit:							
	Calibr. Range:							
	Output signal:							
Accuracy:								
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1530.001)				<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
							<b>CONTR.</b>	<b>TECHNIP</b>
<b>1A-Check</b>				Results				
A1.	Instrument supply			<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Overrange protection			<input type="checkbox"/>	<input type="checkbox"/>			
A3.	Zero suppression			<input type="checkbox"/>	<input type="checkbox"/>			
A4.	Zero elevation			<input type="checkbox"/>	<input type="checkbox"/>			
<b>1B- Signal Calibration</b>				Results				
B1.	Input Signal	0%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B2.		25%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B3.		50%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B4.		75%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B5.		100%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B6.		75%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B7.		50%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B8.		25%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
B9.		0%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C- Final Inspection</b>								
C1.	Final visual inspection			<input type="checkbox"/>	<input type="checkbox"/>			
C2.	As-built marked up copy updated and available			<input type="checkbox"/>	<input type="checkbox"/>			
<b>2A- Installation of support</b>								
A1.	Support prefabrication			<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Support installation			<input type="checkbox"/>	<input type="checkbox"/>			
<b>2B-Secondary cable tray Installation</b>				<input type="checkbox"/>	<input type="checkbox"/>			
<b>2C-Signal cable Installation, Wiring and Instrument Grounding, cable gland Installation</b>				<input type="checkbox"/>	<input type="checkbox"/>			
<b>2D - Installation of Instrument</b>								
D1.	Hook up installation including prefabricated hook up, diaphragm seal (as applicable) complete and sealed			<input type="checkbox"/>	<input type="checkbox"/>			
D2.	Drains / vents (vent / drain connection on drip ring for diaphragm seal type instruments)			<input type="checkbox"/>	<input type="checkbox"/>			
D3.	Cable glands installed and tight			<input type="checkbox"/>	<input type="checkbox"/>			
D4.	TC / RTD fully inserted with gasket bolts and nuts tight			<input type="checkbox"/>	<input type="checkbox"/>			
D5.	Signal cable and cable tray install.			<input type="checkbox"/>	<input type="checkbox"/>			
D6.	Minimum operating voltage at field transmitter			<input type="checkbox"/>	<input type="checkbox"/>			
D7.	Wiring and Grounding connection			<input type="checkbox"/>	<input type="checkbox"/>			
REMARKS :								

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 		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>			
QUALITY CONTROL FORM		ICF 022A	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>INSTRUMENT SWITCHES CALIBRATION AND INSTALLATION SUMMARY REPORT</b>		PROJ. No. 080557C001	REV. 0	SH. _1_ OF _1_		
		CONTRACTOR:		ICF 022A N° _____		
<b>GENERAL DATA</b>						
<b>Tag / Identification:</b>		Model No:	Manufacturer:			
MR/P.O.:		Serial No:	Ref. drawing:			
Process Variable Type (1)		Hook Up Standard:				
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1530.001)		N.A.	ACC.	Report / Reference	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
					CONTR.	TECHNIP
<b>1A- Contact Check</b>						
A1.	Contact type (2)	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Contact action open	<input type="checkbox"/>	<input type="checkbox"/>			
A3.	Contact action close	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1B – Set Point Calibration</b>						
B1.	Set point unit	<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Set point increase	<input type="checkbox"/>	<input type="checkbox"/>			
B3.	Set point decrease	<input type="checkbox"/>	<input type="checkbox"/>			
B4.	Set point reset	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C - Final Inspection</b>						
C1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>			
C2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2A- Installation of support</b>						
A1.	Support prefabrication	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Support installation	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2B-Secondary cable tray Installation</b>		<input type="checkbox"/>	<input type="checkbox"/>			
<b>2C-Signal cable Installation, Wiring and Instrum. Grounding, cable gland Installation</b>		<input type="checkbox"/>	<input type="checkbox"/>			
<b>2D - Installation of Instrument</b>						
D1.	Hook up installation complete and sealed	<input type="checkbox"/>	<input type="checkbox"/>			
D2.	Drains / vents	<input type="checkbox"/>	<input type="checkbox"/>			
D3.	Cable glands installed and tight	<input type="checkbox"/>	<input type="checkbox"/>			
D4.	TC / RTD fully inserted with gasket bolts and nuts tight	<input type="checkbox"/>	<input type="checkbox"/>			
D5.	Signal cable and cable tray install.	<input type="checkbox"/>	<input type="checkbox"/>			
D6.	Wiring and Grounding connection	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2E - Check</b>						
E1.	Instrument installation and maintenance space check	<input type="checkbox"/>	<input type="checkbox"/>			
E2.	HP&LP connect.check(including impulse line and slope)	<input type="checkbox"/>	<input type="checkbox"/>			
E3.	Flow direction check	<input type="checkbox"/>	<input type="checkbox"/>			
E4.	Cable identification	<input type="checkbox"/>	<input type="checkbox"/>			
E5.	Wiring identification & connection	<input type="checkbox"/>	<input type="checkbox"/>			
E6.	Labeling	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2F - Final inspection</b>						
F1.	Final visual insp. (including material & rating)	<input type="checkbox"/>	<input type="checkbox"/>			
F2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>			
<b>Notes:</b> (1) Flow, level, pressure, temperature					(2) SPDT, DPDT, or SPST	
REMARKS :						
<b>3A - FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>	<b>TECHNIP</b>	<b>OWNER</b>		
	NAME					
	SIGNATURE					
	DATE					



 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
QUALITY CONTROL FORM		ICF 028A		<b>CLIENT</b>	
<b>PNEUMATIC PRESSURE LOCAL RECEIVER CONTROL, INDICATOR SUMMARY REPORT</b>		PROJ. No. 080557C001		REV. 0	SH. _1_ OF _2_
		CONTRACTOR:			ICF 028A N° _____
<b>GENERAL DATA</b>					
<b>Tag/ Identification</b>		Hook Up Standard:			
MR/P.O.No.:		Ref. drawing:			
Instrument type		Air Supply from (Sub header/Manifold):			
Manufacturer		Signal from (Instrument Tag):			
Model No / Serial No :		Signal to (Instrument Tag):			
Location (1)					
OPERATION	Calibr. Range:				
	Output signal:				
	Accuracy:				
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1530.001)			<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>
					<b>INSPECTOR SIGNATURE &amp; DATE</b>
					<b>CONTR.</b>
					<b>TECHNIP</b>
<b>1A-Check</b>		Results			
A1.	Reset (set at):		<input type="checkbox"/>	<input type="checkbox"/>	
A2.	Derivative (set at):		<input type="checkbox"/>	<input type="checkbox"/>	
A3.	Prop. band (set at):		<input type="checkbox"/>	<input type="checkbox"/>	
A4.	Action (DIR / REV)		<input type="checkbox"/>	<input type="checkbox"/>	
<b>1B- Signal Calibration</b>		Results			
B1.	Input Signal	0%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>
B2.		25%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>
B3.		50%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>
B4.		75%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>
B5.		100%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>
B6.		75%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>
B7.		50%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>
B8.		25%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>
B9.		0%	Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>
<b>1C- Final Inspection</b>					
C1.	Final visual inspection		<input type="checkbox"/>	<input type="checkbox"/>	
C2.	As-built marked up copy updated and available		<input type="checkbox"/>	<input type="checkbox"/>	
<b>2A - Installation of Support</b>					
A1.	Support prefabrication		<input type="checkbox"/>	<input type="checkbox"/>	
A2.	Support installation		<input type="checkbox"/>	<input type="checkbox"/>	
<b>2B - Secondary cable tray Installation</b>			<input type="checkbox"/>	<input type="checkbox"/>	
<b>2C - Signal cable Installation, Wiring and Instrument Grounding, cable gland Installation</b>			<input type="checkbox"/>	<input type="checkbox"/>	
<b>2D - Installation of Instrument</b>					
D1.	Hook up installation complete and sealed		<input type="checkbox"/>	<input type="checkbox"/>	
D2.	Drains / vents		<input type="checkbox"/>	<input type="checkbox"/>	
D3.	Cable glands installed and tight		<input type="checkbox"/>	<input type="checkbox"/>	
D4.	TC / RTD fully inserted with gasket bolts and nuts tight		<input type="checkbox"/>	<input type="checkbox"/>	
D5.	Signal cable and cable tray install.		<input type="checkbox"/>	<input type="checkbox"/>	
D6.	Wiring and Grounding connection		<input type="checkbox"/>	<input type="checkbox"/>	
<b>2E - Check</b>					
E1.	Instrument install. and maintenance space check		<input type="checkbox"/>	<input type="checkbox"/>	
E2.	HP & LP connections check (including Impulse line and slope)		<input type="checkbox"/>	<input type="checkbox"/>	
E3.	Flow direction check		<input type="checkbox"/>	<input type="checkbox"/>	
E4.	Cable identification		<input type="checkbox"/>	<input type="checkbox"/>	
E5.	Wiring identification & connection		<input type="checkbox"/>	<input type="checkbox"/>	
E6.	Labeling		<input type="checkbox"/>	<input type="checkbox"/>	

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 		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
QUALITY CONTROL FORM		ICF 034A	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>
<b>ON LINE ELECTRONIC TRANSMITTERS SUMMARY REPORT</b>		PROJ. No. 080557C001	REV. 0	SH. _1_ OF _2_
		CONTRACTOR:		ICF 034A N° _____
<b>GENERAL DATA</b>				
<b>Tag/ Identification</b>		Mode (Analogue/Digital):		
MR/P.O. No.:		Instrument pattern tag:		
Instrument type (2)		Hook Up Standard:		
Manufacturer		Ref. drawing:		
Model No/ Serial No.:		P & ID		
F.F. DATA	Data sheet	Rev:		
	Node Address:			
OPER ATION	Engineering Range / Unit:			
	Calibr. Range:			
	Output signal:			
	Accuracy:			
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1530.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>
				<b>INSPECTOR SIGNATURE &amp; DATE</b>
				<b>CONTR.</b>
				<b>TECHNIP</b>
<b>1A-Check</b>		Results		
A1.	Instrument supply	<input type="checkbox"/>	<input type="checkbox"/>	
A2.	Overrange protection	<input type="checkbox"/>	<input type="checkbox"/>	
A3.	Zero suppression	<input type="checkbox"/>	<input type="checkbox"/>	
A4.	Zero elevation	<input type="checkbox"/>	<input type="checkbox"/>	
<b>1B- Signal Calibration</b>		Results		
B1.	0% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>	
B2.	25% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>	
B3.	50% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>	
B4.	75% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>	
B5.	100% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>	
B6.	75% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>	
B7.	50% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>	
B8.	25% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>	
B9.	0% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>	
<b>1C- Final Inspection</b>				
C1.	Final visual inspection	<input type="checkbox"/>	<input type="checkbox"/>	
C2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>	
<b>2A- Installation of support</b>				
A1.	Support prefabrication	<input type="checkbox"/>	<input type="checkbox"/>	
A2.	Support installation	<input type="checkbox"/>	<input type="checkbox"/>	
<b>2B-Secondary cable tray Installation</b>		<input type="checkbox"/>	<input type="checkbox"/>	
<b>2C-Signal cable Installation, Wiring and Instrument Grounding, cable gland Installation</b>		<input type="checkbox"/>	<input type="checkbox"/>	
<b>2D - Installation of Instrument</b>				
D1.	Hook up installation complete and sealed	<input type="checkbox"/>	<input type="checkbox"/>	
D2.	Drains / vents	<input type="checkbox"/>	<input type="checkbox"/>	
D3.	Cable glands installed and tight	<input type="checkbox"/>	<input type="checkbox"/>	
D4.	TC / RTD fully inserted with gasket bolts and nuts tight	<input type="checkbox"/>	<input type="checkbox"/>	
D5.	Signal cable and cable tray install.	<input type="checkbox"/>	<input type="checkbox"/>	
D6.	Wiring and Grounding connection	<input type="checkbox"/>	<input type="checkbox"/>	
REMARKS :				



		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>			
QUALITY CONTROL FORM	<b>ICF 036A</b>	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>			
<b>CONTROL AND ON-OFF VALVES (PNEUM) SUMMARY REPORT</b>		PROJ. No. 080557C001	REV. 0	SH. _1_ OF _3_		
		CONTRACTOR:		ICF 036A N° _____		
<b>GENERAL DATA</b>						
<b>TAG Identification:</b>		MR/ P.O. No.:				
Instrument Type:	<input type="checkbox"/> Control Valve	<input type="checkbox"/> On-off Valve	<input type="checkbox"/> Damper	<input type="checkbox"/> Actuator		
Manufacturer.:	Model No.:		Serial No.:			
F.F. DATA Positioner	Field Device ID.:		Node Address:			
	Engineering Range:		Engineering Unit.:			
Positioner Model N°.:						
P&ID	Rev.	Data Sheet				
Air Supply from (Sub header/Manifold):						
Signal from (Instrument Tag):						
Signal to (Instrument Tag):						
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1530.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
					<b>CONTR.</b>	<b>TECHNIP</b>
<b>1A - Inspection</b>						
A1.	Visual witnessing of ball/plug position	<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Correct supply setting (Pneumatic/Electrical)	<input type="checkbox"/>	<input type="checkbox"/>			
A3.	Stroking time (On-off valves)	<input type="checkbox"/>	<input type="checkbox"/>			
A4.	Position action on signal rise <input type="checkbox"/> Increase <input type="checkbox"/> Decrease	<input type="checkbox"/>	<input type="checkbox"/>			
A5.	Air failure action or electrical failure action <input type="checkbox"/> Fail open (FO) <input type="checkbox"/> Fail closed (FC) <input type="checkbox"/> Fail hold (FH)	<input type="checkbox"/>	<input type="checkbox"/>			
A6.	Electrical classification	<input type="checkbox"/>	<input type="checkbox"/>			
A7.	Valve seat leakage test according to ANSI/FC 70-2 Required seat leakage class according to valve D/S: Test results values:	<input type="checkbox"/>	<input type="checkbox"/>			
A8.	Power supply voltage solenoid valve	<input type="checkbox"/>	<input type="checkbox"/>			
A9.	Output signal position transmitter	<input type="checkbox"/>	<input type="checkbox"/>			
A10.1	Required air supply pressure (Bar) solenoid valve	<input type="checkbox"/>	<input type="checkbox"/>			
A10.2	Required air supply pressure (Bar) booster relay	<input type="checkbox"/>	<input type="checkbox"/>			
A11.1	Housing protection (IP) position transmitter	<input type="checkbox"/>	<input type="checkbox"/>			
A11.2	Housing protection (IP) solenoid valve	<input type="checkbox"/>	<input type="checkbox"/>			
A11.3	Housing protection (IP) limit switches	<input type="checkbox"/>	<input type="checkbox"/>			
A11.4	Housing protection (IP) booster relay	<input type="checkbox"/>	<input type="checkbox"/>			
A12.	Solenoid valve type: way or other	<input type="checkbox"/>	<input type="checkbox"/>			
A13.	Solenoid valve nr. of coils	<input type="checkbox"/>	<input type="checkbox"/>			
A14.	Solenoid valve de-energized to air fail action: <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>			
A15.	Limit switch position: <input type="checkbox"/> Open <input type="checkbox"/> Close	<input type="checkbox"/>	<input type="checkbox"/>			
A16.	Limit switches contact type: <input type="checkbox"/> SPST <input type="checkbox"/> SPDT <input type="checkbox"/> DPDT	<input type="checkbox"/>	<input type="checkbox"/>			
<b>REMARKS :</b>						

 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>			
QUALITY CONTROL FORM		ICF 036A		<b>CLIENT</b>			
<b>CONTROL AND ON-OFF VALVES (PNEUM) SUMMARY REPORT</b>		PROJ. No. 080557C001		REV. 0	SH. <u>2</u> OF <u>3</u>		
		CONTRACTOR:			ICF 036A N° _____		
INSPECTIONS / CHECK (Ref. to QCP 1530.001)			N.A.	ACC.	Report / Reference	INSPECTOR SIGNATURE & DATE	
						CONTR.	TECHNIP
<b>1B - Calibration</b>			Results				
B1.	Positioner Input Signal	0%		<input type="checkbox"/>	<input type="checkbox"/>		
B2.		25%		<input type="checkbox"/>	<input type="checkbox"/>		
B3.		50%		<input type="checkbox"/>	<input type="checkbox"/>		
B4.		75%		<input type="checkbox"/>	<input type="checkbox"/>		
B5.		100%		<input type="checkbox"/>	<input type="checkbox"/>		
B6.		75%		<input type="checkbox"/>	<input type="checkbox"/>		
B7.		50%		<input type="checkbox"/>	<input type="checkbox"/>		
B8.		25%		<input type="checkbox"/>	<input type="checkbox"/>		
B9.		0%		<input type="checkbox"/>	<input type="checkbox"/>		
B10.	Valve Stroke Position Input Signal	0%		<input type="checkbox"/>	<input type="checkbox"/>		
B11.		25%		<input type="checkbox"/>	<input type="checkbox"/>		
B12.		50%		<input type="checkbox"/>	<input type="checkbox"/>		
B13.		75%		<input type="checkbox"/>	<input type="checkbox"/>		
B14.		100%		<input type="checkbox"/>	<input type="checkbox"/>		
B15.		75%		<input type="checkbox"/>	<input type="checkbox"/>		
B16.		50%		<input type="checkbox"/>	<input type="checkbox"/>		
B17.		25%		<input type="checkbox"/>	<input type="checkbox"/>		
B18.		0%		<input type="checkbox"/>	<input type="checkbox"/>		
<b>1C- Final Inspection</b>							
C1.	Final visual inspection			<input type="checkbox"/>	<input type="checkbox"/>		
C2.	As-built marked up copy updated and available			<input type="checkbox"/>	<input type="checkbox"/>		
<b>2A- Installation</b>							
A1.	Equipment installed property			<input type="checkbox"/>	<input type="checkbox"/>		
A2.	Flow direction check			<input type="checkbox"/>	<input type="checkbox"/>		
A3.	Accessories complete			<input type="checkbox"/>	<input type="checkbox"/>		
A4.	Remote panel installed			<input type="checkbox"/>	<input type="checkbox"/>		
A5.	Air receiver tank installed			<input type="checkbox"/>	<input type="checkbox"/>		
<b>2B - Connection</b>							
B1.	Cable glands installed and tight			<input type="checkbox"/>	<input type="checkbox"/>		
B2.	Cable and wiring checks			<input type="checkbox"/>	<input type="checkbox"/>		
B3.	Air supply distribution and signal tubing installation			<input type="checkbox"/>	<input type="checkbox"/>		
<b>2C - Check</b>							
C1.	Diameter and dimensions			<input type="checkbox"/>	<input type="checkbox"/>		
C2.	Material and rating			<input type="checkbox"/>	<input type="checkbox"/>		
C3.	Leak test			<input type="checkbox"/>	<input type="checkbox"/>		
<b>2D - Final inspection</b>							
D1.	Final visual inspection			<input type="checkbox"/>	<input type="checkbox"/>		
D2.	As-built marked up copy updated and available			<input type="checkbox"/>	<input type="checkbox"/>		
REMARKS :							





 		<b>PROJECT</b> <b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>					
<b>QUALITY CONTROL FORM</b>		<b>ICF 037A</b>					
<b>CONTROL AND ON-OFF VALVES (MOV) SUMMARY REPORT</b>		<b>CLIENT</b> <b>INDIAN OIL CORPORATION LIMITED</b>					
		PROJ. No. 080557C001	REV. 0				
		SH. <u>  2  </u> OF <u>  2  </u>					
		CONTRACTOR: <b>ICF 037A N° _____</b>					
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1530.001)			<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
						<b>CONTR.</b>	<b>TECHNIP</b>
<b>1B - Calibration</b>			<b>Results</b>				
B1.	<b>Positioner Input Signal</b>	0%	<input type="checkbox"/>	<input type="checkbox"/>			
B2.		25%	<input type="checkbox"/>	<input type="checkbox"/>			
B3.		50%	<input type="checkbox"/>	<input type="checkbox"/>			
B4.		75%	<input type="checkbox"/>	<input type="checkbox"/>			
B5.		100%	<input type="checkbox"/>	<input type="checkbox"/>			
B6.		75%	<input type="checkbox"/>	<input type="checkbox"/>			
B7.		50%	<input type="checkbox"/>	<input type="checkbox"/>			
B8.		25%	<input type="checkbox"/>	<input type="checkbox"/>			
B9.		0%	<input type="checkbox"/>	<input type="checkbox"/>			
B10.	<b>Valve Stroke Position Input Signal</b>	0%	<input type="checkbox"/>	<input type="checkbox"/>			
B11.		25%	<input type="checkbox"/>	<input type="checkbox"/>			
B12.		50%	<input type="checkbox"/>	<input type="checkbox"/>			
B13.		75%	<input type="checkbox"/>	<input type="checkbox"/>			
B14.		100%	<input type="checkbox"/>	<input type="checkbox"/>			
B15.		75%	<input type="checkbox"/>	<input type="checkbox"/>			
B16.		50%	<input type="checkbox"/>	<input type="checkbox"/>			
B17.		25%	<input type="checkbox"/>	<input type="checkbox"/>			
B18.		0%	<input type="checkbox"/>	<input type="checkbox"/>			
<b>1C- Final Inspection</b>							
C1.	Final visual inspection		<input type="checkbox"/>	<input type="checkbox"/>			
C2.	As-built marked up copy updated and available		<input type="checkbox"/>	<input type="checkbox"/>			
<b>2A - Installation</b>							
A1.	Equipment installed properly		<input type="checkbox"/>	<input type="checkbox"/>			
A2.	Cable trays or conduit and cable installation		<input type="checkbox"/>	<input type="checkbox"/>			
A3.	Remote panel installed		<input type="checkbox"/>	<input type="checkbox"/>			
<b>2B - Connection</b>							
B1.	Cable glands installed and tight		<input type="checkbox"/>	<input type="checkbox"/>			
B2.	Instrument cable and wiring check		<input type="checkbox"/>	<input type="checkbox"/>			
B3.	Grounding check		<input type="checkbox"/>	<input type="checkbox"/>			
<b>2C - Check</b>							
C1.	Diameter and dimensions		<input type="checkbox"/>	<input type="checkbox"/>			
C2.	Material and rating		<input type="checkbox"/>	<input type="checkbox"/>			
C3.	Flow direction check		<input type="checkbox"/>	<input type="checkbox"/>			
C4.	Accessories complete		<input type="checkbox"/>	<input type="checkbox"/>			
<b>2D - Final inspection</b>							
D1.	Final visual inspection		<input type="checkbox"/>	<input type="checkbox"/>			
D2.	As-built marked up copy updated and available		<input type="checkbox"/>	<input type="checkbox"/>			
REMARKS :							
<b>3A- FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>		<b>CONTRACTOR</b>		<b>TECHNIP</b>		<b>OWNER</b>
	<b>NAME</b>						
	<b>SIGNATURE</b>						
	<b>DATE</b>						



**PROJECT****Standby SRU & Additional Tanks  
IOCL Paradip Refinery**

QUALITY CONTROL FORM

**ICF 039A****CLIENT****INDIAN OIL CORPORATION LIMITED****FIELD INSTRUMENT INSTALLATION FINAL  
INSPECTION REPORT**

PROJ. No. 080557C001

REV. 0

SH. \_1\_ OF \_1\_

CONTRACTOR:

ICF 039A N° \_\_\_\_\_

**GENERAL DATA****Instrument TAG:**

Serial:

Model:

MR:

P.O.:

P&amp;ID:

Rev:

**INSPECTIONS / CHECK**  
(Ref. to QCP 1530.001)**N.A.****ACC.****Report /  
Reference****INSPECTOR SIGNATURE & DATE****CONTR.****TECHNIP****1A- Inspection / Check Point**

		N.A.	ACC.	Report / Reference		
A1.	Instrument calibration	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A2.	Instrument installation	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A3.	Impulse line pressure test	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A4.	Instrument signal cable to JB/LP and wiring check	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A5.	Instrument power cable and wiring check if any	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A6.	Cable way in trays; in conduits or underground-layout and installation checks	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A7.	Instrument cable - terminals execution and connection to Instruments and J.Box/L.Panel sides	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A8.	Instrument air sub headers pressure test	<input type="checkbox"/>	<input type="checkbox"/>	ICF 038A (*)		
A9.	Pneumatic connection and air-supply leak test	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A10.	Instrument ready for Loop check (relevant JB/LP checked, relevant cable from JB/LP to system checked, relevant system powered up)	<input type="checkbox"/>	<input type="checkbox"/>			

**REMARKS :** (\*) THE QC REPORTS SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES :

- A1. ICF \_\_\_\_\_ N° \_\_\_\_\_  
A2. ICF \_\_\_\_\_ N° \_\_\_\_\_  
A3. ICF \_\_\_\_\_ N° \_\_\_\_\_  
A4. ICF \_\_\_\_\_ N° \_\_\_\_\_  
A5. ICF \_\_\_\_\_ N° \_\_\_\_\_  
A6. ICF \_\_\_\_\_ N° \_\_\_\_\_  
A7. ICF \_\_\_\_\_ N° \_\_\_\_\_  
A8. ICF 038A N° \_\_\_\_\_  
A9. ICF \_\_\_\_\_ N° \_\_\_\_\_

**INSPECTORS****CONTRACTOR****TECHNIP****OWNER****NAME****SIGNATURE****DATE**

 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – ANALYZER INSTALLATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1560-001	<b>Rev. No.</b> 0	Page 1 of 4

**QUALITY CONTROL PLAN – INSTRUMENTATION &  
COMMUNICATION SYSTEM INSTALLATION**

**ANALYZER INSTALLATION**

TYPE OF QUALITY CONTROL REPORT	CERTIFICATION EXTENT
ICF-001U	“U” Unpacking
ICF-005A; ICF-013A; ICF-038A	“A” Installation
ICF-039A	Final Inspection Report

**REFERENCE DOCUMENTS:**

- 080557C-000-STC-1590-001                      Installation Standards
- 080557C-000-JSS-1590-001                    Job Specification for Instrumentation Installation Works
- 080557C-000-PP-850                            Site Co-ordination

**LEGENDS**

- H = HOLD (Work Stop for Inspection- RFI required)  
W = WITNESS (RFI required)  
WC = 100% SUPERVISION AND EXAMINATION BY CONTRACTOR  
S = SURVEILLANCE (NO RFI)  
R = REVIEW of QC REPORTS  
N/A = NOT APPLICABLE  
P = PREPARATION  
A = DOCUMENT APPROVAL  
IFA = ISSUED FOR APPROVAL / AUTHORIZATION  
! = WARNING (Control of document revision status)  
INFO = FOR INFORMATION  
N.A. = NOT ACCEPTED  
ACC. = ACCEPTED

			 Govindaraj Subramanian- External 2019.10.14 16:44:37 +05'30'	 Shyamundar Kanthalurajan 2019.10.18 10:40:57 +05'30'	 Srisam Sankaranarayanan 2019.10.21 16:08:23 +05'30'	 Mortechristopher Jesumarian 2019.11.01 13:21:42 +05'30'
0	14-10-2019	ISSUED FOR IMPLEMENTATION	SGR	KRS	SS	JMC
<b>REV.</b>	<b>DATE</b>	<b>STATUS</b>	<b>WRITTEN BY</b> (name & visa)	<b>CHECKED BY</b> (name & visa)	<b>APPROVED BY</b> (name & visa)	<b>AUTHOR. BY</b> (name & visa)

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		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – ANALYZER INSTALLATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1560-001		<b>Rev. No.</b> 0	Page 2 of 4

## QUALITY CONTROL PLAN

### INSTRUMENTATION & COMMUNICATION SYSTEM INSTALLATION

#### ANALYZER INSTALLATION (1560.00)

#### QUALITY CONTROL ACTIVITIES

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
<b>A</b>	<b>PRELIMINARY ACTIVITIES</b>				
A1	CHECK OF CONTRACTOR DRAWINGS REVISION STATUS	N/A	!	!	
A2	CHECK OF CONTRACTOR TECHNICAL SPECIFICATION AND PROCEDURE	N/A	P	A	
A3	CONTRACTOR'S METHOD STATEMENT (IF REQUIRED)	N/A	IFA	A	(1)
A4	AVAILABILITY OF VENDOR INSTALLATION MANUAL, DRAWING AND DOCUMENTATION	N/A	IFA	A	(1)
A5	REVIEW OF SYSTEMS FAT PUNCH LIST (IF ANY)	By Vendor	WC	R	
<b>B</b>	<b>UNPACKING</b>				
B1	MATERIAL IDENTIFICATION AND CONSERVATION STATUS (FOR BOTH LOOSE AND PREASSEMBLED MATERIALS) UNPACKING VISUAL INSPECTION	ICF-001U	WC	W/R	
<b>C</b>	<b>INSTALLATION</b>				
C1	<b>ON-LINE ANALYZER INSTALLATION</b>				
C1.1	<b>Field Instrument Calibration Test</b>				
C1.1A	Check	ICF-005A	WC	W/R	
C1.1B	Signal Calibration	ICF-005A	WC	W/R	
C1.1C	Final inspection	ICF-005A	WC	W/R	
C1.2	<b>Field instrument Installation</b>				
C1.2A	Installation of supports	ICF-005A	WC	W/R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – ANALYZER INSTALLATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1560-001	<b>Rev. No.</b> 0	Page 3 of 4

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C1.2B	Secondary Cable tray installation	ICF-005A	WC	W/R	
C1.2C	Signal cable installation, wiring and instrument grounding, cable gland installation	ICF-005A	WC	W/R	
C1.2D	Installation of instrument	ICF-005A	WC	W/R	
C1.2E	Instrument Check	ICF-005A	WC	W/R	
C1.2F	Final inspection	ICF-005A	WC	W/R	
C1.3	<b>Instrument Impulse Line Pressure Test</b>				
C1.3A	Ferrules Installation	ICF-005A	WC	W/R	
C1.3B	Tubing/Piping Test	ICF-005A	WC	W/R	
C1.3C	Final inspection	ICF-005A	WC	W/R	
C1.4A	<b>Final Documentation Review</b>	ICF-005A	P	R	
C1.4B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C2	<b>ANALYZER INSTALLATION IN ANALYZER SHELTER</b>				
C2.1	<b>Field Instrument Calibration Test</b>				
C2.1A	Check	ICF-005A	WC	W/R	
C2.1B	Signal Calibration	ICF-005A	WC	W/R	
C2.1C	Final inspection	ICF-005A	WC	W/R	
C2.2	<b>Field instrument Installation</b>				
C2.2A	Installation of supports	ICF-005A	WC	W/R	
C2.2C	Signal cable installation, wiring and instrument grounding, cable gland installation	ICF-005A	WC	W/R	
C2.2D	Installation of instrument	ICF-005A	WC	W/R	
C2.2E	Instrument Check	ICF-005A	WC	W/R	
C2.2F	Final inspection	ICF-005A	WC	W/R	

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 	<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>QCP – INSTRUMENTATION &amp; COMMUNICATION SYSTEM INSTALLATION – ANALYZER INSTALLATION</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-000-QCP-1560-001	<b>Rev. No.</b> 0	Page 4 of 4

Nr.	CHECK AND INSPECTION ITEM	QUALITY CONTROL FORM	ACTION		NOTES
			CONTR.	TECHNIP	
C2.3	<b>Instrument Impulse Line Pressure Test</b>				
C2.3A	Ferrules Installation	ICF-005A	WC	W/R	
C2.3B	Tubing/Piping Test	ICF-005A	WC	W/R	
C2.3C	Final inspection	ICF-005A	WC	W/R	
C2.4A	<b>Final Documentation Review</b>	ICF-005A	P	R	
C2.4B	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)
C3	<b>ANALYZER EQUIPMENT INSTALLATION</b>				
C3.1	<b>Field instrument Installation</b>				
C3.1A	Installation of support	ICF-013A	WC	W/R	
C3.1D	Installation of instrument	ICF-013A	WC	W/R	
C3.1E	Check	ICF-013A	WC	W/R	
C3.1F	Final inspection	ICF-013A	WC	W/R	
C3.1G	Final Documentation Review	ICF-013A	P	R	
C3.1H	<b>Field Instrument Installation Final Inspection</b>	ICF-039A	WC	W/R	(2)

## GENERAL NOTES

1 THE ENCLOSED ITP'S ARE INDICATIVE AND SHALL BE FOLLOWED FOR DEVELOPING THE JOB SPECIFIC ITP'S FOR THE WORKS TO BE PERFORMED BY THE CONTRACTOR. THE PROVISIONS INDICATED FOR STAGE WISE INSPECTION BY TECHNIP AND OWNER (FOR SPECIFIC ACTIVITIES) ARE THE MINIMUM AND THE ENGINEER-IN- CHARGE MAY DECIDE TO INCREASE HOLD POINTS/ WITNESS POINTS, WHILE APPROVING THE JOB SPECIFIC ITP'S. ACTIVITIES FOR WHICH ITP'S ARE NOT PROVIDED IN THIS SPECIFICATION. CONTRACTOR TO DEVELOP AND GET THE SAME APPROVED BY TECHNIP/OWNER BEFORE START OF THE WORK. IN GENERAL ROLE OF TECHNIP HAS BEEN SPECIFIED IN THE DOCUMENT THE ROLE OF OWNER TO BE SPECIFIED DURING PREPARATION OF SITE SPECIFIC ITP'S.

2 CONTRACTOR TO SUBMIT JOB SPECIFIC REPORTING FORMATS AND JOB PROCEDURES FOR THE JOBS FOR EACH ACTIVITY LISTED IN THE ITP'S AND SUBMIT TO TECHNIP/OWNER FOR APPROVAL. BEFORE COMMENCEMENT OF THE ACTIVITY. IF THE CONTRACTOR HAS TO DEVIATE FROM THE GIVEN ITP FOR A VALID REASON, HE SHALL OBTAIN PRIOR WRITTEN APPROVAL OF TECHNIP/OWNER. CONTRACTOR TO CARRY OUT 100% EXAMINATION OF ALL ACTIVITIES.

**NOTES:** (1) A COPY OF THE DOCUMENT WILL BE DELIVERED TO COMPANY FOR INFORMATION  
(2) TO BE FILED AS PART OF LOOP CHECK FOLDERS

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**PROJECT**

**Standby SRU & Additional Tanks IOCL  
Paradip Refinery**

QUALITY CONTROL FORM

**ICF 005A**

**CLIENT**

**INDIAN OIL CORPORATION LIMITED**

**FIELD INSTRUMENT CALIBRATION, INSTALLATION  
AND IMPULSE LINE PRESSURE TEST  
SUMMARY REPORT**

PROJ. No. 080557C001

REV. 0

SH. \_1\_ OF \_2\_

CONTRACTOR:

**ICF 005A N° \_\_\_\_\_**

**GENERAL DATA**

<b>Tag/ Identification</b>		Instrument pattern tag:	
MR/P.O. No.:		Hook Up Standard:	
Instrument type		Ref. drawing:	
Manufacturer		P & ID	
Model No/ Serial No.:		Operating pressure (Kg/Cm2g)	
F.F DATA	Field Device TAG	Test Media	
	Node Address:	Test pressure (Kg/Cm2g)	
	Engineering Range / Unit:	Rev:	
OPER ATION	Calibr. Range:		
	Output signal:		
	Accuracy:		
Mode (Analogue/Digital):			

INSPECTIONS / CHECK (Ref. to QCP 1560.001)	N.A.	ACC.	Report / Reference	INSPECTOR SIGNATURE & DATE	
				CONTR.	TECHNIP

<b>1A- Check</b>		Results				
A1.	Instrument supply		<input type="checkbox"/>	<input type="checkbox"/>		
A2.	Overrange protection		<input type="checkbox"/>	<input type="checkbox"/>		

<b>1B- Signal Calibration</b>		Results				
Input Signal	B1.	0% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>		
	B2.	25% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>		
	B3.	50% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>		
	B4.	75% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>		
	B5.	100% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>		
	B6.	75% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>		
	B7.	50% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>		
	B8.	25% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>		
	B9.	0% Output signal/ Error:	<input type="checkbox"/>	<input type="checkbox"/>		

<b>1C- Final Inspection</b>						
C1.	Final visual inspection		<input type="checkbox"/>	<input type="checkbox"/>		
C2.	As-built marked up copy updated and available		<input type="checkbox"/>	<input type="checkbox"/>		

<b>2A- Installation of support</b>						
A1.	Support prefabrication		<input type="checkbox"/>	<input type="checkbox"/>		
A2.	Support installation		<input type="checkbox"/>	<input type="checkbox"/>		

<b>2B-Secondary cable tray Installation</b>	<input type="checkbox"/>	<input type="checkbox"/>				
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<b>2C-Signal cable Installation, Wiring and Instrument Grounding, cable gland Installation</b>	<input type="checkbox"/>	<input type="checkbox"/>				
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<b>2D - Installation of Instrument</b>						
D1.	Hook up installation complete and sealed		<input type="checkbox"/>	<input type="checkbox"/>		
D2.	Sampling system installation		<input type="checkbox"/>	<input type="checkbox"/>		
D3.	Drains / vents		<input type="checkbox"/>	<input type="checkbox"/>		
D4.	Cable glands installed and tight		<input type="checkbox"/>	<input type="checkbox"/>		
D5.	TC / RTD fully inserted with gasket bolts and nuts tight		<input type="checkbox"/>	<input type="checkbox"/>		
D6.	Signal cable and cable tray install.		<input type="checkbox"/>	<input type="checkbox"/>		
D7.	Wiring and Grounding connection		<input type="checkbox"/>	<input type="checkbox"/>		

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 		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>	
QUALITY CONTROL FORM		ICF 013A	<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>
<b>FIELD INSTRUMENT INSTALLATION SUMMARY REPORT</b>		PROJ. No. 080557C001	REV. 0	SH. _1_ OF _1_
		CONTRACTOR:		ICF 013A N° _____
<b>GENERAL DATA</b>				
<b>Tag / Identification:</b>				
MR/P.O.:				
Manufacturer & Model:				
Serial number:				
Hook Up Standard:				
Ref. drawing:				
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1560.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>
				<b>INSPECTOR SIGNATURE &amp; DATE</b>
				<b>CONTR.</b>
				<b>TECHNIP</b>
<b>1A- Installation of support</b>				
A1.	Support prefabrication	<input type="checkbox"/>	<input type="checkbox"/>	
A2.	Support installation	<input type="checkbox"/>	<input type="checkbox"/>	
<b>1B - Secondary cable tray Installation</b>		<input type="checkbox"/>	<input type="checkbox"/>	
<b>1C - Signal cable Installation, Wiring and Instrument Grounding, cable gland Installation</b>		<input type="checkbox"/>	<input type="checkbox"/>	
<b>1D - Installation of Instrument</b>				
D1.	Hook up installation complete and sealed	<input type="checkbox"/>	<input type="checkbox"/>	
D2.	Sampling system installation	<input type="checkbox"/>	<input type="checkbox"/>	
D3.	Drains / vents	<input type="checkbox"/>	<input type="checkbox"/>	
D4.	Cable glands installed and tight	<input type="checkbox"/>	<input type="checkbox"/>	
D5.	TC / RTD fully inserted with gasket bolts and nuts tight	<input type="checkbox"/>	<input type="checkbox"/>	
D6.	Signal cable and cable tray install.	<input type="checkbox"/>	<input type="checkbox"/>	
D7.	Wiring and Grounding connection	<input type="checkbox"/>	<input type="checkbox"/>	
<b>1E - Check</b>				
E1.	Instrument installation and maintenance space check	<input type="checkbox"/>	<input type="checkbox"/>	
E2.	HP & LP connections check (including Impulse line and slope)	<input type="checkbox"/>	<input type="checkbox"/>	
E3.	Flow direction check	<input type="checkbox"/>	<input type="checkbox"/>	
E4.	Cable identification	<input type="checkbox"/>	<input type="checkbox"/>	
E5.	Wiring identification & connection	<input type="checkbox"/>	<input type="checkbox"/>	
E6.	Labeling	<input type="checkbox"/>	<input type="checkbox"/>	
<b>1F - Final inspection</b>				
F1.	Final visual inspection (including material & rating)	<input type="checkbox"/>	<input type="checkbox"/>	
F2.	As-built marked up copy updated and available	<input type="checkbox"/>	<input type="checkbox"/>	
REMARKS :				
<b>1G - FINAL DOC. REVIEW</b>	<b>INSPECTORS</b>	<b>CONTRACTOR</b>		<b>TECHNIP</b>
	<b>NAME</b>			
	<b>SIGNATURE</b>			
	<b>DATE</b>			
<b>OWNER</b>				



 		<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks IOCL Paradip Refinery</b>		
QUALITY CONTROL FORM		ICF 039A		<b>CLIENT</b>		
<b>FIELD INSTRUMENT INSTALLATION FINAL INSPECTION REPORT</b>		PROJ. No. 080557001		REV. 0	SH. _1_ OF _1_	
		CONTRACTOR:			ICF 039A N° _____	
<b>GENERAL DATA</b>						
<b>Instrument TAG:</b>						
Serial:						
Model:						
MR:						
P.O.:						
P&ID:						
Rev:						
<b>INSPECTIONS / CHECK</b> (Ref. to QCP 1560.001)		<b>N.A.</b>	<b>ACC.</b>	<b>Report / Reference</b>	<b>INSPECTOR SIGNATURE &amp; DATE</b>	
					<b>CONTR.</b>	<b>TECHNIP</b>
<b>1A- Inspection / Check Point</b>						
A1.	Instrument calibration	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A2.	Instrument installation	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A3.	Impulse line pressure test	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A4.	Instrument signal cable to JB/LP and wiring check	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A5.	Instrument power cable and wiring check if any	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A6.	Cable way in trays; in conduits or underground-layout and installation checks	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A7.	Instrument cable - terminals execution and connection to Instruments and J.Box/L.Panel sides	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A8.	Instrument air sub headers pressure test	<input type="checkbox"/>	<input type="checkbox"/>	ICF 038A (*)		
A9.	Pneumatic connection and air-supply leak test	<input type="checkbox"/>	<input type="checkbox"/>	ICF (*)		
A10.	Instrument ready for Loop check (relevant JB/LP checked, relevant cable from JB/LP to system checked, relevant system powered up)	<input type="checkbox"/>	<input type="checkbox"/>			
<b>REMARKS :</b> (*) THE QC REPORTS SHALL BE INDICATED IN THE RELEVANT HERE BELOW SPACES :						
A1. ICF _____ N° _____						
A2. ICF _____ N° _____						
A3. ICF _____ N° _____						
A4. ICF _____ N° _____						
A5. ICF _____ N° _____						
A6. ICF _____ N° _____						
A7. ICF _____ N° _____						
A8. ICF 038A N° _____						
A9. ICF _____ N° _____						
<b>INSPECTORS</b>	<b>CONTRACTOR</b>		<b>TECHNIP</b>		<b>OWNER</b>	
<b>NAME</b>						
<b>SIGNATURE</b>						
<b>DATE</b>						