Duvha Power Station — OSP HMI UPGRADE METHODOLOGY / TECHNICAL DOCUMENTATION REQUIREMENTS

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Methodology column codes: T (ENQUIRY/TENDER), U (UP-FRONT TRNING), B (BASIC ENGINEERING), D (DETAILED ENGINEERING), M (MANUFACTURING), E (PROCUREMENT AND INSTALLATION), C (COMMISSIONING), O (Change over to new HMI), A (OSP HMI Upgrade COMPLETION) ← (First Character of Revision No. in Document No.)

FUNCTION GROUP	(Unit No.)	DOCUMENT NO. (Seq)	(Rev)	(DCC)	DOCUMENT DESCRIPTION	Tender	Up-Front Eng Training Completion	High Level Eng Philosophies &	Technical Clarification Pre-requisite Docs (B)	Basic Eng Design Freeze Documents	Technical Clarification Pre-requisite Docs (D)	Detailed Eng Design Freeze Documents	FAT Pre-requisite Documents	Erection & Installation Pre-requisite Documents	SIT Completion Documents	Cold Commissioning Output Documents	Commissioning (OAT) Completion Documents	Change Over to new HMI Risk Assesment and	"AS BUILT" Document Package	Generated by the Engineering Tools	Software Format	REMARKS
PER UFG	0*	UFG**	**	** DCC	OPERATING TRAINGING MANUALS			(green)	(green)	(green)	(green)	(green)	(green)	(green)	(green)	(green)	(green)	(green)	(green)		WORD	
OUTSIDE PLANT FUNCTION GROUPS	0*	UFG**	**	** DCC	LIMITS OF SUPPLY AND SERVICES	E		(green)	C	C									C		EXCEL	
	0*	UFG**	**	** DCC	PROCUREMENT PLAN FOR ALL EQUIPMENT				C	C									C	YES	EXCEL	
FG01	0*	FG01	**	** DCC	HMI PHILOSOPHY			C		C									C	YES	WORD	
OPERATOR SYSTEM	0*	FG01	**	** DCC	HMI GRAPHIC TEMPLATES				C	C									C	YES	JPG	
	0*	FG01	**	** DCC	OPERATOR SYSTEM FUNCTIONAL SPECIFICATION				C	C									C	YES	WORD	
	0*	FG01	**	** DCC	SOFTWARE INVENTORY (LISTING ALL SOFTWARE PACKAGES, VERSION NUMBER, LICENSE INFORMATION,ETC...)				C	C									C	YES	EXCEL	
FG02	0*	FG02	**	** DCC	ENGINEERING SYSTEM FUNCTIONAL SPECIFICATION				C	C							C		C	YES	WORD	
ENG SYSTEM	0*	FG02	**	** DCC	ENG SYSTEM GUI						C	C							C		JPG	
	0*	FG02	**	** DCC	SOFTWARE INVENTORY (LISTING ALL SOFTWARE PACKAGES, VERSION NUMBER, LICENSE INFORMATION,ETC...)				C	C									C	YES	EXCEL	

Duvha Power Station — OSP HMI UPGRADE METHODOLOGY

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FUNCTION GROUP	Unit	Doc No	Rev	DCC	DOCUMENT DESCRIPTION	Tender	Up-Front Eng Training Completion	High Level Eng Philosophies &	Technical Clarification Pre-req (Basic)	Basic Eng Design Freeze	Technical Clarification Pre-req (Detailed)	Detailed Eng Design Freeze	FAT Pre-requisite	Erection & Installation Pre-req	SIT Completion	Cold Commissioning Output	Commissioning (OAT) Completion	Change Over to new HMI Risk Assessment	"AS BUILT" Document Package	Generated by Eng Tools	Software Format	REMARKS
GFG03 / NETWORKS	0*	FG03	**	** DCC	NETWORK STRUCTURE FUNCTIONAL SPECIFICATION				C	C									C	YES	WORD	
	0*	FG03	**	** DCC	NETWORK CABINET FUNCTIONAL SPECIFICATION				C	C									C	YES	WORD	
	0*	FG03	**	** DCC	NETWORK INSTALLATION PHILOSOPHY			C		C									C	YES	WORD	
	0*	FG03	**	** DCC	SYSTEM ARCHITECTURE DRAWING	C		C		C	C	C			C				C	YES	CAD	
	0*	FG03	**	** DCC	PHYSICAL NETWORK CONFIGURATION DRAWINGS						C	C			C				C	YES	CAD	
	0*	FG03	**	** DCC	LOGICAL NETWORK CONFIGRUATION DRAWINGS						C	C			C				C	YES	CAD	
	0*	FG03	**	** DCC	NETWORK EQUIPMENT SCHEDULE (LISTING ALL NETWORK EQUIPMENT INCLUDING PATCH PANELS, MEDIA CONVERTERS, NETWORK SWITCHES,ETC…)				C	C								C	C	YES	EXCEL	
	0*	FG03	**	** DCC	SOFTWARE INVENTORY (LISTING ALL SOFTWARE PACKAGES, VERSION NUMBER, LICENSE INFORMATION,ETC...)				C	C									C	YES	EXCEL	
	0*	FG03	**	** DCC	NETWORK CABINET INTERNAL LAYOUT				C	C									C	YES	CAD	
	0*	FG03	**	** DCC	NETWORK CABINET INTERNAL EQUIPMENT CONFIGURATION SETTINGS (IP ADDRESSES, CONFIGURATION SETTINGS, ETC…)				C	C									C	YES	EXCEL	
	0*	FG03	**	** DCC	NETWORK CABINET INTERNAL POWER DISTRIBUTION				C	C									C	YES	CAD	
FG 04 CABLING & ASSOCIATED INFRASTRUCTURE	0*	FG04	**	** DCC	CABLE BLOCK DIAGRAM (SHOWING ALL MAIN RACKING AND NETWORK CABLING ROUTES)				C	C									C	YES	CAD	
	0*	FG04	**	** DCC	DESIGN AND ROUTING REPORT (NARRATIVE ACCOMPANYING CABLE BLOCK DIAGRAM)				C	C									C	YES	WORD	
	0*	FG04	**	** DCC	CABLE SCHEDULES						C	C		C					C	YES	EXCEL	
	0*	FG04	**	** DCC	TERMINATION SCHEDULES						C	C		C					C	YES	EXCEL	
	0*	FG04	**	** DCC	CERTIFICATES OF COMPLIANCE									C					C		PDF	

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FUNCTION GROUP	Unit	DOC NO.	Rev	DCC	DOCUMENT DESCRIPTION	Tender (T)	Up-Front Eng Training Completion (U)	High Level Eng Philosophies & (B)	Technical Clarification Pre-requisite Docs (B)	Basic Eng Design Freeze Docs (B)	Technical Clarification Pre-requisite Docs (D)	Detailed Eng Design Freeze Docs (D)	FAT Pre-requisite Documents (M)	Erection & Installation Pre-requisite Docs (E)	SIT Completion Documents	Cold Commissioning Output Docs (C)	Commissioning (OAT) Completion Docs (C)	Change Over to new HMI Risk Assesment (O)	"AS BUILT" Document Package (A)	Generated by the Engineering Tools	Software Format	REMARKS
FG05 POWER DISTRIBUTION SYSTEMS	0*	FG05	**	** DCC	POWER DISTRIBUTION PHILOSOPHY			C		C								C	C	YES	WORD	
	0*	FG05	**	** DCC	EARTHING AND SCREENING FUNCTIONAL SPECIFICATION				C	C									C	YES	WORD	
	0*	FG05	**	** DCC	EARTHING DRAWINGS				C	C							C		C	YES	CAD	
	0*	FG05	**	** DCC	LIGHTNING/EMC PROTECTION PHILOSOPHY			C		C									C	YES	WORD	
	0*	FG05	**	** DCC	220V POWER DISTRIBUTION DRAWINGS				C	C									C	YES	CAD	
	0*	FG05	**	** DCC	DB BOX LOCATION DETAILS				C	C				C					C	YES	CAD	
FG06 NETWORK MANAGEMENT SYSTEMS	0*	FG06	**	** DCC	NETWORK MANAGEMENT SYSTEM FUNCTIONAL SPECIFICATION				C	C									C	YES	WORD	
	0*	FG06	**	** DCC	SOFTWARE INVENTORY (LISTING ALL SOFTWARE PACKAGES, VERSION NUMBER, LICENSE INFORMATION, ETC...)				C	C									C	YES	EXCEL	
	0*	FG06	**	** DCC	NETWORK MANAGEMENT SYSTEM GUI						C	C							C		JPG	
FG07 USER MANAGEMENT SYSTEMS	0*	FG07	**	** DCC	USER MANAGEMENT SYSTEM FUNCTIONAL SPECIFICATION				C	C									C	YES	WORD	
	0*	FG07	**	** DCC	SOFTWARE INVENTORY (LISTING ALL SOFTWARE PACKAGES, VERSION NUMBER, LICENSE INFORMATION, ETC...)				C	C									C	YES	EXCEL	
	0*	FG07	**	** DCC	AUTHENICATION & ACCOUNT SCHEDULE FOR GROUPS & USERS						C	C			C				C	YES	EXCEL	
	0*	FG07	**	** DCC	USER MANAGEMENT SYSTEM GUI						C	C							C		JPG	
GFG08 TESTS	0*	FG08	**	** DCC	PRE-FAT TEST REPORTS								C						C	YES	WORD	
	0*	FG08	**	** DCC	FAT TEST PROCEDURES						C	C								YES	WORD	
	0*	FG08	**	** DCC	SIT TEST PROCEDURES						C	C								YES	WORD	
	0*	FG08	**	** DCC	OAT TEST PROCEDURES						C	C								YES	WORD	
	0*	FG08	**	** DCC	CAT TEST PROCEDURES						C	C								YES	WORD	
	0*	FG08	**	** DCC	COLD COMMISSIONING PROCEDURE						C	C								YES	WORD	
	0*	FG08	**	** DCC	IT PENTRATION TEST PROCEDURES						C	C								YES	WORD	
	0*	FG08	**	** DCC	FINAL FAT REPORT														C	YES	WORD	

Column note markers: (Unit No. here), (Sequence No. in this column), (Revision No. in this column), (IEC 61355 DCC code here)

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Function Group	Unit No.	Doc No.	Seq	Rev	DCC	Document Description	Tender	Up-Front Eng Training Completion	High Level Eng Philosophies &	Technical Clarification Pre-requisite Documents (B)	Basic Eng Design Freeze Documents	Technical Clarification Pre-requisite Documents (D)	Detailed Eng Design Freeze Documents	FAT Pre-requisite Documents	Erection & Installation Pre-requisite Documents	SIT Completion Documents	Cold Commissioning Output Documents	Commissioning (OAT) Completion Documents	Change Over to new HMI Risk Assessment and	"AS BUILT" Document Package	Generated by the Engineering Tools	Software Format	Remarks
ACCEPTANCE T	0*	FG08	**	**	DCC	FINAL LOGICAL FAT REPORT														C	YES	WORD	
	0*	FG08	**	**	DCC	FINAL SIT REPORT										C				C	YES	WORD	
	0*	FG08	**	**	DCC	COLD COMMISSIONING TESTS REPORT (FUNCTIONAL TESTS, VALVE & DAMPER TESTS, ELECTRICAL DRIVE TESTS AND INSTRUMENT CHECKS)											C			C	YES	WORD	
	0*	FG08	**	**	DCC	FINAL OAT REPORT												C		C	YES	WORD	
	0*	FG08	**	**	DCC	FINAL CAT REPORT													C	C	YES	WORD	
	0*	FG08	**	**	DCC	FINAL EMULATOR TEST REPORT								C						C	YES	WORD	
	0*	FG08	**	**	DCC	FINAL IT PENTRATION TEST REPORT														C	YES	WORD	
	0*	FG08	**	**	DCC	COMPLETION CERTIFICATES														C	YES	PDF	
FG09 / GPS TIME SYNC	0*	FG09	**	**	DCC	GPS TIME SYNC SYSTEM FUNCTIONAL SPECIFICATION			C	C										C	YES	WORD	
	0*	FG09	**	**	DCC	GPS EQUIPMENT SCHEDULE			C	C										C	YES	EXCEL	
	0*	FG09	**	**	DCC	GPS EQUIPMENT CONFIGURATION AND WIRING DRAWING			C	C										C	YES	CAD	
	0*	FG09	**	**	DCC	GPS USER SCHEDULE			C	C										C	YES	EXCEL	
FG10 / CENTRAL UPDATE SYSTEM	0*	FG10	**	**	DCC	CENTRAL UPDATE SYSTEM FUNCTIONAL SPECIFICATION			C	C										C	YES	WORD	
	0*	FG10	**	**	DCC	SOFTWARE INVENTORY (LISTING ALL SOFTWARE PACKAGES, VERSION NUMBER, LICENSE INFORMATION,ETC...)			C	C										C	YES	EXCEL	
	0*	FG10	**	**	DCC	CENTRAL UPDATE SYSTEM GUI						C	C							C		JPG	
FG11 / BACKUP SYSTEM	0*	FG11	**	**	DCC	BACKUP SYSTEM FUNCTIONAL SPECIFICATION			C	C										C	YES	WORD	
	0*	FG11	**	**	DCC	SOFTWARE INVENTORY (LISTING ALL SOFTWARE PACKAGES, VERSION NUMBER, LICENSE INFORMATION,ETC...)			C	C										C	YES	EXCEL	
	0*	FG11	**	**	DCC	BACKUP SYSTEM GUI						C	C							C		JPG	
FG12	0*	FG12	**	**	DCC	PIS SYSTEM FUNCTIONAL SPECIFICATION			C	C										C	YES	WORD	

		Duvha Power Station				OSP HMI UPGRADE METHODOLOGY									TECHNICAL DOCUMENTATION REQUIREMENTS		

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T	U	B	D	M	E	C	O	A
ENQUIRY/TENDER	UP-FRONT TRNING	BASIC ENGINEERING	DETAILED ENGINEERING	MANUFACTURING	PROCUREMENT AND INSTALLATION	COMMISSIONING	Change over to new HMI	OSP HMI Upgrade COMPLETION

Main table:

FUNCTION GROUP	(Unit No. here)	DOCUMENT NO. (Sequence No in this column)	(Revision No. in this column)	(IEC 61355 DCC code here)	DOCUMENT DESCRIPTION	Tender	Up-Front Engineering Training Completion	High Level Eng Philosophies &	Technical Clarification Pre-requisite Documents	Basic Eng Design Freeze Documents	Technical Clarification Pre-requisite Documents	Detailed Eng Design Freeze Documents	FAT Pre-requisite Documents	Erection & Installation Pre-requisite Documents	SIT Completion Documents	Cold Commissioning Output Documents	Commissioning (OAT) Completion Documents	Change Over to new HMI Risk Assesment and	"AS BUILT" Document Package	Generated by the Engineering Tools	Software Format	REMARKS
PLANT INFORMATION SYSTEM	0*	FG12	**	** DCC	SOFTWARE INVENTORY (LISTING ALL SOFTWARE PACKAGES, VERSION NUMBER, LICENSE INFORMATION,ETC...)				C	C									C	YES	EXCEL	
	0*	FG12	**	** DCC	PROCESS GRAPHICS						C	C							C	YES	JPG	
	0*	FG12	**	** DCC	REPORT TEMPLATES						C	C							C	YES	EXCEL	
	0*	FG12	**	** DCC	TAG DATABASE						C	C							C	YES	EXCEL	

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Column key for data table below:
- T = Tender
- U = Up-Front Engineering Training Completion
- HLE = High Level Eng Philosophies &
- TCB = Technical Clarification Pre-requisite Documents (Basic)
- BEF = Basic Eng Design Freeze Documents
- TCD = Technical Clarification Pre-requisite Documents (Detailed)
- DEF = Detailed Eng Design Freeze Documents
- FAT = FAT Pre-requisite Documents
- E&I = Erection & Installation Pre-requisite Documents
- SIT = SIT Completion Documents
- CC = Cold Commissioning Output Documents
- OAT = Commissioning (OAT) Completion Documents
- CO = Change Over to new HMI Risk Assesment and
- AB = "AS BUILT" Document Package

Function Group	Document No.	Document Description	T	U	HLE	TCB	BEF	TCD	DEF	FAT	E&I	SIT	CC	OAT	CO	AB	Generated by Eng Tools	Software Format
FG13	0* FG13 ** ** DCC	ESP FUNCTIONAL SPECIFICATION				C	C									C	YES	WORD
CYBER SECURITY & ESP	0* FG13 ** ** DCC	CYBER SECURITY MANUAL				C	C									C	YES	WORD
	0* FG13 ** ** DCC	ESP EQUIPMENT SCHEDULE				C	C									C	YES	EXCEL
	0* FG13 ** ** DCC	SOFTWARE INVENTORY (LISTING ALL SOFTWARE PACKAGES, VERSION NUMBER, LICENSE INFORMATION,ETC...)				C	C									C	YES	EXCEL
FG14	0* FG14 ** ** DCC	HEAT DISSIPATION SCHEDULE (FOR ALL EQUIPMENT IN THE ROOM)				C	C									C	YES	EXCEL
CONTROL ROOMS	0* FG14 ** ** DCC	OPERATING ENVIRONMENTAL CONDITION SCHEDULE (FOR ALL EQUIPMENT IN THE ROOM)				C	C									C	YES	EXCEL
	0* FG14 ** ** DCC	ROOMS DESIGN & LAYOUT (SHOWING ALL EQUIPMENT, RACKING, ETC…)				C	C									C	YES	CAD
	0* FG14 ** ** DCC	ROOM LIGHTING ARRANGEMENTS REQUIREMENTS				C	C									C	YES	CAD
	0* FG14 ** ** DCC	ROOM POWER POINTS REQUIREMENTS				C	C									C	YES	CAD
FG15	0* FG15 ** ** DCC	HEAT DISSIPATION SCHEDULE (FOR ALL EQUIPMENT IN THE ROOM)				C	C									C	YES	EXCEL
ENGINEERING ROOM	0* FG15 ** ** DCC	OPERATING ENVIRONMENTAL CONDITION SCHEDULE (FOR ALL EQUIPMENT IN THE ROOM)				C	C									C	YES	EXCEL
	0* FG15 ** ** DCC	ROOMS DESIGN & LAYOUT (SHOWING ALL EQUIPMENT, RACKING, ETC…)				C	C									C	YES	CAD
	0* FG15 ** ** DCC	ROOM LIGHTING ARRANGEMENTS REQUIREMENTS				C	C									C	YES	CAD
	0* FG15 ** ** DCC	ROOM POWER POINTS REQUIREMENTS				C	C									C	YES	CAD
FG16	0* FG16 ** ** DCC	MANUAL SYNOPSIS			C				C							C	YES	WORD
SING & DATASHEETS	0* FG16 ** ** DCC	TRAINING MANUALS	C	C					C		C			C	C	C	YES	WORD
	0* FG16 ** ** DCC	PLANT OPERATING MANUALS						C	C					C		C	YES	WORD
	0* FG16 ** ** DCC	STANDARD EQUIPMENT OPERATING MANUALS			C				C							C		PDF
	0* FG16 ** ** DCC	MAINTENANCE MANUALS						C	C					C		C	YES	WORD
	0* FG16 ** ** DCC	SYSTEM DIAGNOSTIC/MAINTENANCE MANUALS						C	C					C		C	YES	WORD
	0* FG16 ** ** DCC	CATALOGUES AND BROCHURES	C		C				C							C		PDF

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Function Group	Unit	Doc No.	Seq	Rev	DCC	Document Description	Tender (T)	Up-Front Eng Training Completion (U)	High Level Eng Philosophies &	Tech Clarification Pre-req (Basic)	Basic Eng Design Freeze	Tech Clarification Pre-req (Detailed)	Detailed Eng Design Freeze	FAT Pre-req	Erection & Installation Pre-req	SIT Completion	Cold Commissioning Output	Commissioning (OAT) Completion	Change Over to new HMI Risk Assessment	"AS BUILT" Document Package	Generated by Eng Tools	Software Format	Remarks
MANUALS, LICENSES	0*	FG16	**	**	DCC	ENGINEERING AND MAINTENANCE PROCEDURES SCHEDULE						C	C							C	YES	WORD	
	0*	FG16	**	**	DCC	ENGINEERING AND MAINTENANCE PROCEDURES						C	C		C			C		C	YES	WORD	
	0*	FG16	**	**	DCC	INSTALLATION DISKS OF ALL PROVIDED SOFTWARE														C		N/A	
	0*	FG16	**	**	DCC	LICENCES FOR ALL PROVIDED SOFTWARE														C		N/A	
	0*	FG16	**	**	DCC	RECOMMENDED SPARES HOLDING SCHEDULE						C	C					C		C	YES	EXCEL	
FG17 / MISCELLANEOUS	0*	FG17	**	**	DCC	BILL OF QUANTITIES	C					C			C			C	C	C		EXCEL	
	0*	FG17	**	**	DCC	TECHNICAL CLARIFICATION MEETING MINUTES						C			C			C	C	C	YES	WORD	
	0*	FG17	**	**	DCC	ENGINEERING PROGRAM	C		C			C			C			C	C	C		PRIMAVERA	
	0*	FG17	**	**	DCC	PLANT CODING PHILOSOPHY			C			C								C	YES	WORD	
	0*	FG17	**	**	DCC	SIGNAL DESCRIPTION PHILOSOPHY			C			C								C	YES	WORD	
	0*	FG17	**	**	DCC	FUNCTIONAL DISTRIBUTION CONCEPTS			C			C								C	YES	WORD	
	0*	FG17	**	**	DCC	OEM BEST PRACTICES	C		C			C								C	YES	PDF	
	0*	FG17	**	**	DCC	OEM CONFIRMATION LETTER OF OVERALL SOLUTION ACCORDING TO THE OEM BEST PRACTICES						C								C		PDF	
	0*	FG17	**	**	DCC	TOTAL COST OF OWNERSHIP CALCULATION & REPORT				C	C							C		C	YES	WORD	
	0*	FG17	**	**	DCC	LIFE CYCLE MANAGEMENT STRATEGY				C	C							C		C	YES	WORD	
	0*	FG17	**	**	DCC	INDEX AND MASTER REGISTER OF DOCUMENTS	C		C			C		C		C		C		C	YES	EXCEL	
	0*	FG17	**	**	DCC	DOCUMENT SYNOPSIS				C		C								C	YES	WORD	
	0*	FG17	**	**	DCC	TRAINING SCHEDULE	C	C												C	YES	EXCEL	
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	0*	FG17	**	**	DCC	CHANGE MANAGEMENT PROCEDURES			C			C								C	YES	WORD	
	0*	FG17	**	**	DCC	INVENTORY OF REMOVED EQUIPMENT				C	C				C					C	YES	EXCEL	