

PIPELINE



QUALITY ASSURANCE PLAN INTERNAL DEPOT/INSTALLATION PIPELINE WORK

SL. NO.	ITEM/DESCRIPTION	TYPE OF CHECK	METHOD OF CHECKING	EXTENT OF CHECK/FREQUENCY	REF. DOCUMENT	ACCEPT-ANCE NORMS	FORMAT OF DOCUMENTS	RESPONSIBILITY (WHO PERFORMS WHAT?)			RE MARKS
								Checked by	Witnessed by	Verified by	

1.0	MATERIALS										
1.1	LINE PIPE FOR INTERNAL PIPELINE WORK,PUMPHOUSE,MANI FOLD,HEADER, OMC AND EXCHANGE PIT PIPELINE	1.PHYSICAL & CHEMICAL PROPERTIES	CHECKING /VERIFYING MANUFACTURE R'S TEST REPORT /CERTIFICATES /IDENTIFICATION OP PIPE WITH CERTIFICATE	100%	MR/P.O/DATA SHEET	CERTIFICATION AS PER API 5L	SUPPLIER'S TEST REPORT/CERTIFICATE	3	4	3,4	
		2.DIMENSION FOR O.D. THICKNESS, LENG TH	PHYSICAL MEASURE-MENT	ONE PER EVERY LOT/HEAT	AS PER P.O	ALLOWABLE TOLLERENCE FOR DIA UPTO O.D 508MM & ABOVE 508MM = + 0.75% & 1% RESPECTIVELY WALL THCKNSS +_ 10%	INSPECTION RECORD	2		3,4	
		3.SURFACE QUALITY AND BEVEL ENDS AND PROTECTIVE END CAPS	VISUAL	100%	AS PER P.O	NO DEFECTS,NO PITTING	INSPECTION RECORD	2	2	3,4	

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1.2.	SORF FLANGE	1. PHYSICAL & CHEMICAL PROPERTIES 2. DIMENSION 3. SURFACE QUALITY	VERIFICATION OF MANUFACTURER'S TEST CERTIFICATE MEASUREMENT VISUAL	RANDOM RANDOM RANDOM	PO/CONTRACT/SEC PO/CONTRACT/SEC PO/CONTRACT/SEC	MATL SPEC-ASTM A 105 FLANGE DESIGN-ANSI B 16.5 NO DEFECT/NO PITTING	MANUFACTURER'S CERTIFICATE INSPECTION REPORT INSPECTION REPORT	2 2 2	- - -	3.4 3.4 2.3	
1.3	CS GATE VALVE	1. PHYSICAL 2. HYDRAULIC TEST	VERIFICATION OF MANUFACTURER'S RECORD/TC HYD - TEST AT 1.5 TIMES OF WORKING PRESSURE	100% 100%	AS PER BPCL SPECIFICATION/ API 600 CLASS 150 AS PER SPECIFICATION/ CONTRACT	API 600 CLASS 150 NO LEAKAGE AND DROP IN HYD-PRESSURE	MANUFACTURER'S CERTIFICATE/RECORDS INSPECTION REPORT	3.4 2	- 3.4	3.4 3.4	

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								Checking/ performed by	Witnessed by	
1.4	PLUG VALVE (PRESSURE BALANCED OR ORDINARY) FOR BOTH CI AND CS MAKE	1. PHYSICAL 2. HYDRAULIC TEST	VERIFICATION OF MANUFACTURER'S RECORD/TC HYD - TEST AT 1.5 TIMES OF WORKING PRESSURE	100% 100%	AS PER BPCL SPECIFICATION/ AS PER SPECIFICATION/C ONTRACT	API 6D EXCEPT FOR 3 INCH NB NO LEAKAGE AND DROP IN HYD-PRESSURE	MANUFACTURER'S CERTIFICATE/RECORDS INSPECTION REPORT	3.4 2	3.4 3.4	
1.5	OTHER VALVES FOR BOTH CI AND CS MAKE	1. PHYSICAL 2. HYDRAULIC TEST	VERIFICATION OF MANUFACTURER'S RECORD/TC HYD - TEST AT 1.5 TIMES OF WORKING PRESSURE	100% 100%	AS PER BPCL SPECIFICATION/ AS PER SPECIFICATION/C ONTRACT	AS SPECIFIED NO LEAKAGE AND DROP IN HYD-PRESSURE	MANUFACTURER'S CERTIFICATE/RECORDS INSPECTION REPORT	3.4 2	3.4 3.4	

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1.6	PUMPS	PHYSICAL/CHEM ANALYSIS OF MATL OF CONSTRUCTION	VERIFICATION OF S TEST CERTIFICATE / TPI MANU FACTURER'S RECORDS IDENTIFICATION/ CORRELATION WITH TAG NUMBER	100%	PO/APPD SPEC	API 610/APPD SPEC	INSPECTION REPORT	4		3,3	
1.7	LOADING ARMS	PHYSICAL/CHEM ANALYSIS OF MATL OF CONSTRUCTION	VERIFICATION OF ALL TEST CERTIFICATES FOR PARTS & COMPLETE ASSY / TPI, MANUFACTURE R'S RECORDS	100%	PO/APPD SPEC	STD DRG/APPD SPEC	INSPECTION REPORT	4		3,3	
1.8	TEES, ELBOWS, BENDS, REDUCERS, BLIND FLANGE	1. PHYSICAL & CHEMICAL PROPERTIES 2. HYDRAULIC TEST 3. DIMENSIONAL	VERIFI. OF MANUF'S CERTIFICATE PHYSICAL MEASUREMENT	100% 100%/AS PER SPEC 100%	AS PER P.O AS PER SPEC. AS PER API 5L	BPC MANUAL FOR STD SPEC FOR MATLRLS AS PER CODE TOLERANCE AS PER API 5L	MFG. TEST CERTIFICATE MFG. TEST CERTIFICATE INSPECTION REPORT	2,3,4 2 2	- 3 -	3,4 3,4 3,4	

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								Checking/perform by	Witnessed by	Verified by	
2	PIPELINE SUPPORT	1. PHYSICAL CHECK 2. DIMENSION & SURFACE QUALITY	VERIFYING WITH APPROVED DRD MEASUREMENT/VISUAL	100% 100%	AS PER APPD. DRGS. AS PER DRG.	AS PER SPEC/DRG APPD. DRG./	INSPECTION REPORT INSPECTION REPORT	2 2		3, 4 3, 4	
3.0	PIPELINE PROTECTIVE COATING/PAINTING										
3.1	WRAPPING / COATING OF UNDERGROUND PIPELINE	1. PHYSICAL CHEMICAL PROPERTIES, HEAT TREATMENT 2. DIMENSION	VERIFYING MANUFACTURER'S TEST CERTIFICATES MEASUREMENT	100% RANDOM	AS PER SPEC AS PER DRG.	AS PER CODE APPROVED DRG.	MFG. T.C. OR LAB REPORT INSPECTION REPORT	2 2	2 2	3 2, 3	

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								Checking/ performed by	Witnessed by	Verified by	
3.2	PAINTING OF ABOVEGROUND PIPELINE	1. PHYSICAL & CHEMICAL PROPERTIES	VERIFYING MANUFACTURE R'S CERTIFICATE FOR PAINT AND PRIMER	RANDOM	AS PER CONTRACT/SPEC	MFG. T.C./ LAB REPORT		2	3	3,4	
		2. SURFACE PREPARATION	CHECKING CLEANLINESS	100%	CLEAN SURFACE ,FREE OF OIL/DIRTS	INSPECTION REPORT		2	3	3,4	
		3. APPLICATION	MEASURE THICKNESS OF COATING	RANDOM	STD SPEC	INSPECTION REPORT		2		3,4	
		4. PRODUCT IDENTIFICATION BAND	MEASUREMENT FOR BAND WIDTH AND VISUAL CHECK FOR COLOUR SCHEME	100%	STD SPEC	INSPECTION REPORT		2		4	
6.0	PIPE LINE LAYING AND FABRICATION										
6.1	BUTT JOINT FIT-UP	ALIGNMENT, DIMENSIONS	MEASUREMENT	100%	APPD.DRG	INSPECTION REPORT		2	3,4	3,4	
6.2	BUTT WELD	1.VISUAL 2.RADIOGRAPHY TEST	CHECKING MEASUREMENT	RANDOM AS PER CONTRACT	APPD.DRG. AS PER SPEC	INSPECTION REPORT INSPECTION REPORT		2 2		3,4 3,4	

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								Checking/ performed by	Witnessed by	Verified by	
6.3	LAYING OF PIPELINE	1. FIT UP	VISUAL	100%	AS PER DRG	AS PER APPROVED DRG/SPEC	INSPECTION REPORT	2	-	3,4	
		3. DIMENSIONAL	MEASURE-MENT	RANDOM	APPD. DRG.	APPD. DRG.	INSPECTION REPORT	2		3,4	
7.0	WELDING WORK										
7.1.	WELDING PROCEDURE SPECIFICATION	CORRECTNESS	SCRUTINY	100%	SPECS/WPS	WPS-ASME-SEC. IX	WPS	2	3,4	3,4	
7.2	WELDING PROCEDURE QUALIFICATION	WELD SOUNDNESS	PHYSICAL TEST	100%	WPS	ASME-SEC. IX & WPS	TEST REPORT	2	3,4	3,	
7.3	WELDING PERFORMANCE QUALIFICATION RECORD	WELD SOUNDNESS	RADIOGRAPHY	100%	APPD. WPS	ASME SEC. IX & APPD. WPS	WPQ REPORT	3	3,4	3	

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								Check/king/esse/perform by	Witnessed by	Verified by	
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	INSTALLATION OF LOADING ARM	1.CHECKING VERTICALITY OF RISER PIPE	MEASUREMENT	100%	SPEC/APPD DRG	OUR STD SPEC/DRG	INSPECTION REPORT	2		3,4	
		2.CHECKING ALIGNMENT OF RISER PIPE AND TOP SUPPORT	MEASUREMENT	100%	SPEC/APPD DRG	OUR STD SPEC/DRG	INSPECTION REPORT	2		3,4	
		3.CHECKING ALL NUT BOLTS IN BASE FRAME INLET & OUTLET FLANGE	PHYSICAL	100%	SPEC/APPD DRG	OUR STD SPEC/DRG	INSPECTION REPORT	2		1/4	
		4.CHECKING INLET /OUT LET FLANGE CONNECTIONS	PHYSICAL	100%	SPEC/APPD DRG	OUR STD SPEC/DRG	INSPECTION REPORT	2		3,4	
		5. CHECKING EASY OPERABILITY OF LOADING ARM	PHYSICAL	100%	SPEC/APPD DRG	OUR STD SPEC/DRG	INSPECTION REPORT	2		3,4	
11	INSPECTION PRIOR TO RELEASE FOR HYDRO TEST	1.COMPLETENESS	VERIFICATION OF ALL RECORDS	100%	APPD.DRG.	APPD.DRG.	INSPECTION REPORT	3,4		3,4	

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								Checking/assessment by	Witnessed by	Verified by	
	TESTING OF PIPE LINE	HYDRAULIC TEST AT 1.5 TIMES WORKING PRESSURE	OBSERVING PRESSURE AND LEAKAGES	100%	AS PER CONTRACT	NO LEAKAGE AND MAINTAINING HYD-PRESSURE IN PRESSURE GAUGE AS PER CONTRACT	INSPECTION REPORT	2	3,4	3,4	

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								Check/ing/esse/parfo/rm/by	Witn/esse/d by	Verifi/ed by	

12	CLEANING	CLEANING & EXTERNAL & INTERNAL AFTER HYDRO-TEST	VISUAL	100%			TECH SPEC.	INSPECTION REPORT	2	2	3,4	
13	PAINTING	SURFACE PREPARATION, SURFACE FINISH, COATING THICKNESS	VISUAL, COATING THICKNESS, GAUGE	100%	APPD SPEC		AS PER SPEC	INSPECTION REPORT	2	3	3,4	
14	QA & QC DOCUMENTATION	REVIEW OF ALL TEST CERTIFICATES, INSPECTION REPORTS IN STAGES		100%	APPD.DRG / TECH SPEC./ CONTRACT/ CODES		APPD.DRG/ TECH SPEC/CONTRAC T/CODES	INSPECTION REPORT	2	-	3,4	

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