

**Quality Assurance (Mechanical)**  
**CONTRACT QUALITY REQUIREMENT (CQR)**

WS: ENNORE: PERM TANK:492  
Dt. 01-07-2022

Item Name	Indent No	Indent Dt.	PGMA	Technical Specification/Drawing No
RO Stage II Permeate Storage Tank with Acc.	RWT21157	29.06.2022	WT500	ROS: 6144, Rev: 01. And Drawing No:2-WT-220-00347,Rev: 01

**Project: ENNORE (2X660 MW)**

Following are Quality recommendation:

1. Applicable vendor shall be obtained from Commercial and same is acceptable to Quality also.
2. All the items shall be inspected at Manufacturer works as per BHEL/Customer approved QP, Approved Drawing/Approved datasheet and Technical Specification.
3. Arrange to submit Vendor QP in line with attached MQP format (covering all the items - Raw material checks, in process and final inspection) for review & approval.
4. Physical Inspection shall be done by BHEL/BHEL AIA.
5. Inspection and testing refer BHEL Specification (Class 3.1-29(1&3), 5(4) and 10 )
6. Painting of items shall be as per BHEL Specifications / Approved Datasheet.
7. Packing of items shall be as per BHEL Engg Approved Packing Drawing/Packing Specifications.
8. BHEL Authorized representatives shall have the right to witness the necessary inspection and testing of goods mentioned in the PO. The supplier shall inform BHEL in advance about the readiness of the goods for inspection and testing. Inspection / Inspection wavier / approval by BHEL does not absolve Supplier's responsibility for conformity of the specification as per the terms of PO. Material Test Certificates shall be submitted to BHEL.
9. Annexure 'Q' shall be part of enquiry File and shall be filled by Supplier with their duly sign and seal.
10. Supplier should be manufacturer not a trader/Agent. *(If the OEM/Principal engaging the services of an agent to participate on their behalf, vendor will be acceptable with respect to Quality requirement provided acceptance on Point No 2, 3, 4 and 7 shall be accepted to supplier)*
11. **Following Inspection Notes applicable during inspection:**
  - a. Latest version of standards & Specification shall be applied.
  - b. Materials shall be procured in compliance to Functional Technical specification.
  - c. Gauges and measuring instruments with valid calibration only shall be used.
  - d. Inspection / Inspection wavier / approval by BHEL does not absolve Supplier's responsibility for conformity of the specification as per the terms of PO.
  - e. BHEL /BHEL Authorized representatives shall have the right to witness the necessary inspection and testing of goods mentioned in the PO.
  - f. In case of Vendor Drawing & Datasheet, it needs approval by BHEL Engineering.
  - g. This QP shall be read along with relevant PO, BHEL Specification / Approved Drawing/ Datasheet.

This is for information and further necessary action at your end pls.

Rakesh Kr Madhu (Dy. Mgr/QA)  
Prepared by

K Renjith (Mgr. /QA)  
Reviewed & Approved by

## Annexure Q

Indent No:		Enquiry no:	
Sl.No	BHEL / Customer Requirements	## Specific confirmations by the manufacturer (Acceptable/Not acceptable)	
	<b>Quality Plan Requirement: (If SQP is not given &amp; Vendor QP applicable)</b>		
	(i) MQP (Manufacturing Quality Plan) shall be submitted in attached format for BHEL/Customer review & approval. Our SQP/Typical MQP/ MQP Format is attached for guidance & use.		
	(ii) MQP shall invariably cover w.r.t Inward inspection including on Raw material Procurement, In process and Final inspection in elaborated way/details.		
	(iii) Bidder shall also to give specific confirmation that on need basis, their competent officials shall visit to BHEL / customer for finalization of Quality plan including test procedure/methodology during preaward / post award approval / detailed engineering in the event of an order.		
	(iv) No deviation on BHEL/Customer approved MQP/ SQP (In case BHEL SQP is provided) is acceptable.		
1	(v) Bidder shall agree to submit all cross referred documents other than codes/standards to BHEL/Customer/Consultant.		
	<b>Important Notes shall be included in MQP :</b> (a) Latest revision of Standard s & Specification shall apply. Only International Standards are applicable. (b) Materials shall be procured in compliance to Functional Technical Specification. (c) Inspection shall be in compliance with Approved Quality Control Procedure for the Product. (d) NDT shall be carried out by Qualified Personnel with compliance to Approved NDT Procedures and Acceptance Norms, as per ASME standard. (e) Gauges and measuring Instruments, with valid calibration only shall be used. (f) Cleaning and Painting of products shall be carried out as per Approved Painting Schedule. (g) Finished Products shall be packed to comply with Approved Packing Schedule. (h) Welding shall be carried out by Qualified Personnel with compliance to Approved NDT Procedures and Acceptance Norms, as per ASME standard.		
2	<b>Domestic / Inland Inspection</b> will be carried out by BHEL/BHEL appointed Third Party Inspection Agency (TPIA) / Customer/Customer Appointed Inspection Agency/Consultant. This is applicable for all Stage inspection and Final Inspection identified as "W" - Witness or "CHP" - Customer Hold Point as per customer approved Quality Plan/ Technical specification / Approved Drawing/ Approved Data sheet / Scheme / PID / PFD / SLD (Process Instrumentation Diagram / Process Flow Diagram / Single Line Diagram) etc. (as applicable).		
3	<b>Inspection Agency for Foreign Bidders and also for Indian Bidder but importing from Foreign Sources:</b> (1) Any one of the following Third Party Inspection Agency (TPIA) shall be appointed by the bidder and same shall be furnished by the bidder in techno commercial bid itself. (2) The details of TPIA with contact details like Name of the official, Phone no, Email id shall also to be submitted during pre/post award. However cost for such inspection agency shall be borne by the bidder only. Inspection charges for such inspection agency shall be indicated separately so that if BHEL/Customer is undertaking the inspection by on their own , then these charges are non claimable by the bidder. For NTPC Project ensure TPI Approved by NTPC. Refer our QC Procurement email in this regard. <b>List of TPIA</b> 1.M/s Bureau Veritas 2.M/s TUV-Nord 3.M/s TUV-SUD 4.M/s TUV Rheinland 5.M/s Lloyds Register 6.M/s SGS 7.M/s Germanischer Lloyds 8.M/s QUEST 9.M/s Certification Engineers International 10.M/s Intertek 11.M/s IR Class Systems and Solutions 12.M/s DNV 13. M/s Fichtner 14. M/s ABS Inspection Services		

Sl.No	BHEL / Customer Requirements	## Specific confirmations by the manufacturer (Acceptable/Not acceptable)
4	<b>Stage Inspection during manufacturing Process</b> : Stage Inspection during manufacturing shall be carried out as per approved quality plan and all necessary documents shall be provided for review, verification and clearance for further processing. This inspection call shall be given well in advance (at least 2 weeks before) to TPI/Bidder's own inspection agency to avoid delay in the manufacturing processes.	
5	<b>Inspection before despatch for domestic supplier</b> : Inspection before despatch at supplier's works shall be carried out by BHEL appointed Inspection agency (as in Sl no. 2). Inspection shall be done as per approved Quality plan/ Technical specification/ Approved Drawing/ Approved Data sheet .	
6	<b>Inspection at Foreign Source/Supplier:</b> (a) As in sl no: 3. shall be ensured without fail (b) No material / items shall be despatched without getting the written communication from BHEL / Customer inspection carried out by Bidder appointed Third Party Inspection Agency (As per Sl no.3) / Customer/Customer Appointed Inspection Agency/Consultant. This is applicable for all Stage inspection and Final Inspection identified as "W" - Witness or "CHP" - Customer Hold Point as per customer approved Quality Plan/ Technical specification / Approved Drawing/ Approved Data sheet / Scheme / PID / PFD / SLD (Process Instrumentation Diagram / Process Flow Diagram / Single Line Diagram) etc. (As applicable). Inspection before despatch for Foreign supplier : Inspection before despatch at supplier's works shall be carried out by bidder appointed inspection agencies having international presence at vendors and or vendor's sub vendor works. Inspection shall be done as per approved Quality plan/ Technical specification/ Approved Drawing/ Approved Data sheet by TPIA mentioned in Sl no: 03 at supplier's cost.	
7	<b>Painting</b> shall be done strictly as per BHEL/Customer approved painting schedule / scheme only. Paint Thickness / Paint shade shall be ensured as per BHEL / Customer approved painting schedule / specification / data sheet etc. No deviation is acceptable unless otherwise accepted by BHEL/Customer in writing. Any conflict if any among BHEL / Customer approved painting schedule / Spec / data sheet etc. shall be brought to the notice of BHEL well in advance before proceeding including the BOI being procured for assy / skid like motors etc.	
8	Specific conformation for document package in the event of an order (2 Hard copies & soft copy in PDF file) is to be given containing the following with proper linkages (i) Index Sheet (ii) MQP/RQP/Endorsement Sheet (As applicable) (iii) TCs identified by BHEL/ Customer for record for "CHP" / "W" and Verification portion ("V") as given in approved QP. (iv) Final inspection report + TC including Chemical + Mechanical + HT + NDT etc. (v) Third party Inspection report + TC (vi) Customer CHP/ MDCC (vii) Type test / Performance Test reports conducted (viii) Type test / Performance Test approval/ clearance obtained from BHEL/Customer (ix) BOM with As Build Drgs with actual make / rating used with BHEL/customer approved drawings.	
9	<b>Packing / Seaworthy Packing</b> shall be as per BHEL Packing schedule / approved drg / sketch. This shall be ensured to take care transit / handling / transshipment in Road / Sea / Air. Photographs are to be submitted for BHEL review before despatching the material as per contract conditions.	
10	<b>Outsourcing of test facilities:</b> Bidder shall ensure all the testing facilities in house. However If any of the test facilities are not available with successful bidder, then bidder shall ensure the same at NABL accredited third party lab / Govt / Govt Lab for major testing such as NDT, Electrical & Mechanical testing.	
11	<b>Important Note:</b> No deviation on the above requirement 01 to 10 is acceptable with respect to Quality Requirement and those offers not meeting these specific customer requirement is liable for rejection and hence the bidder shall submit all the required documentary evidences in the offer itself.	
12	## Necessarily to be filled up by the bidder at the time of offer itself otherwise the offer may not be considered w.r.t Quality Requirement being customer specific requirement.	

VENDOR SIGN AND STAMP:

Vendor Name &amp; Address:

Manufacturer Name and Address		ITEM NAME:		MANUFACTURING QUALITY PLAN									
						QP NO :							
						DATE :							
						REV : 00, DATE: ---							
						PAGE : 1 OF 5							
SL. No	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM M C/N	REFERENCE DOCUMENT	DEPT NORMS	FORMAT OF RECORD		AGENCY		REMARKS	
1	2	3	4	5	6	7	8	9	D*	**10		11	
<b>1</b>	<b>RAW MATERIAL INSPECTION</b>												
1.1	PLATES FOR SHELL AND DISHED ENDS & STRUCTURALS	CHEMICAL & PHYSICAL	MAJOR	CHEMICAL & PHYSICAL	1/FIT	APPD. DRG / DATA SHEET		TC	√	P	V	V	REFER NOTE-1
1.2	PIPES	REVIEW OF MILL TC	MAJOR	REVIEW	1/LOT	APPD. DRG / DATA SHEET		TC	√	P	V	V	REFER NOTE-2
1.3	FASTENERS & FITTINGS	REVIEW OF MILL TC	MAJOR	REVIEW	1/LOT	APPD. DRG / DATA SHEET		TC	√	P	V	V	REFER NOTE-2
<b>2</b>	<b>INPROCESS INSPECTION</b>												
2.1	WELDING ( AS APPLICABLE)	WPS, PQR, WPC	CRITICAL	VERIFICATION	100%	ASME-SEC-IX		QW---	√	P	v/w	v/w	REFER NOTE-3
<b>2.2</b>	<b>DISHED ENDS</b>												
2.2.1	WELDING ROOT RUN	WELD QUALITY AFTER BACK GAUGING	MAJOR	DPT	10%	ASTM-E-165	NO LINEAR INDICATION	IR	√	P	V	V	
		QUALITY OF WELD JOINT AND WELD SOUNDNESS	MAJOR	DPT	100%	ASTM-E-165	NO LINEAR INDICATION	IR	√	P	V	V	
			MAJOR	RT	100%	ASME SEC-V / IS :803 & 2594	ASME SEC-VIII / IS : 803 & 2594	RT FILM & REPORT	√	P	V	V	

Manufacturer Name and Address		ITEM NAME:		MANUFACTURING QUALITY PLAN										
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SL. No	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM		REFERENCE DOCUMENT	ACCEPT NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					M	C/N				D*	M	C	N	
1	2	3	4	5	6		7	8	9	D*	**10			11
2.2.2	AFTER FORMING OF DISHED ENDS	DIMENSIONAL CONFORMITY & THINNING	MAJOR	MEASURE	100%		APPD. DRG / DATA SHEET		IR	√	P	W	V	
		NDT OF KNUCKLE PORTION	MAJOR	DPT	100%		ASTM-E-165	NO LINEAR INDICATION	IR	√	P	W	V	
		STRESS RELIEVING	MAJOR	REVIEW	100%		ASME SEC-VIII / IS : 803 & 2594		HT CHART	√	P	V	V	REFER NOTE-4
2.3	<b>SHELL</b>													
2.3.1	PRODUCTION TEST COUPON (ONLY FOR DESIGN CODE IS:803 & 2594)	WELD QUALITY SOUNDNESS	CRITICAL			100%	IS:803 & 2594 / APPD. DRG / DATA SHEET		IR	√	P	W	V	
2.3.2	MARKING, EDGE PREPARATION, ROLLING & SETUP, WITH TACK WELDING FOR SHELL & DISHED ENDS	DIMENSIONAL CONFORMANCE AND ROOT GAP	MINOR	MEASURE		100%	APPD. DRG & WPS		IR	-	P	-	-	
2.3.3	BUTT WELDING - ROOT RUN	WELD QUALITY AFTER BACK GAUGING	MAJOR	DPT		10%	ASTM-E-165	NO LINEAR INDICATION	IR	√	P	V	V	

Manufacturer Name and Address		ITEM NAME:		MANUFACTURING QUALITY PLAN									
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SL. No	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM	REFERENCE DOCUMENT	REPT NORMS	FORMAT OF RECORD		AGENCY			REMARKS
1	2	3	4	5	6	7	8	9	D*	**10			11
					M	C/N				M	C	N	
2.3.4	BUTT WELDING - FINAL RUN	WELD QUALITY	MAJOR	DPT	100%	ASTM-E-165	NO LINEAR INDICATION	IR	√	P	W	W	REFER NOTE-5
		WELD QUALITY OF CIRCUMFERENTIAL & LONGITUDINAL SEAMS	CRITICAL	RT	AS PER CODE	ASME SEC-V / IS: 803 & 2594	ASME SEC-VIII/ IS : 803 & 2594	RT FILM & REPORT	√	P	V	V	REFER NOTE-6
		WELD QUALITY OF T-JOINTS	CRITICAL	RT	100%	ASME SEC-V / IS: 803 & 2595	ASME SEC-VIII/ IS : 803 & 2595	RT FILM & REPORT	√	P	V	V	
2.3.5	FILLET WELD	WELD QUALITY	MAJOR	DPT	10%	ASTM-E-165	NO LINEAR INDICATION	IR	√	P	V	V	
2.4	FINAL ASSEMBLY & NOZZLE ORIENTATION	DIMENSIONAL CONFORMITY	MAJOR	MEASURE	100%	APPD. DRG	APPD. DRG	IR	√	P	V	V	
3	FINAL INSPECTION												
		DIMENSIONAL	MAJOR	DIMENSION	100%	APPD. DRG	APPD. DRG	IR	√	P	W	W	
		NOZZLE ORIENTATION	CRITICAL	DIMENSION	100%	APPD. DRG	APPD. DRG	IR	√	P	W	W	

920586/2022/BAP-QA\_MECH

Manufacturer Name and Address		ITEM NAME:		MANUFACTURING QUALITY PLAN										
						QP NO :								
						DATE :								
						REV : 00, DATE: ---								
						PAGE : 1 OF 5								
SL. No	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM	REFERENCE DOCUMENT	RECEPT NORMS	FORMAT OF RECORD		AGENCY			REMARKS	
1	2	3	4	5	6	7	8	9	D*	**10			11	
					M	C/N				M	C	N		
3.1	COMPLETE VESSEL	HYDRO TEST	CRITICAL	HYDRO TEST	100%		2 X WORKING PR OR 1.5 X DESIGN PR WHICH EVER IS HIGHER FOR 30MIN DURATION	NO LEAKAGE	IR	V	P	W	W	REFER NOTE-7
3.2	RUBBER LINING	PLEASE REFER SEPARATE APPROVED QP FOR RUBBER LINING.												
<b>3.3</b>	<b>PAINTING &amp; MARKING</b>													
3.3.1	SPECIAL PAINTING IF REQUIRED AS PER CUSTOMER SPEC (I.E EPOXY PAINTING ETC)	PAINT FINISH, THICKNESS	CRITICAL	VISUAL & MEASURE	100%		APPD. DRG / DATA SHEET		IR	V	P	W	V	
3.3.2	PRIMER & ENAMEL PAINT	FINISH	MINOR	VISUAL & MEASURE	100%		MFR.STD/ APPD. DRG		IR	V	P	V	V	

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Manufacturer Name and Address		ITEM NAME:		MANUFACTURING QUALITY PLAN										
						QP NO :								
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SL. No	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM		REFERENCE DOCUMENT	DEPT NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					M	C/N			M	C	N			
1	2	3	4	5	6	7	8	9	D*	**10				11

**LEGEND**

\* : RECORDS, (v) : Identified with tick shall be essentially included by supplier in QA Documentation , \*\* M : MANUFACTURER/SUB SUPPLIER,  
 C: MAIN SUPPLIER, N: CUSTOMER, P: PERFORM, W ; WITNESS, V : VERIFICATION AS APPROPRIATE, CHP : CUSTOMER SHALL IDENTIFIED IN COLOUMN "N" AS "W"  
 IRN: INSPECTION RELEASE NOTE

NOTE-1: IN ABSENCE OF CO RELATED MILL TC , MANUFACTURER SHALL ARRANGE TESTING AND TC SHALL BE SUBMITTED FOR CUSTOMER REVIEW.

NOTE-2: TC REVIEW FOR CHEMICAL, MECHANICAL PROPERTIES & HYDRO TEST.

NOTE-3: IF WELDERS ARE ALREADY QUALIFIED BY MANUFACTURER AS PER RELEVANT STANDARD / LYODS/CUSTOMER & DOING SIMILAR JOB REGUL

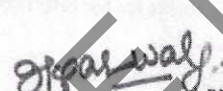
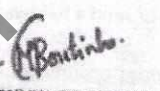

NOTE-4: APPLICABLE FOR DISHED ENDS FABRICATED BY WELDING OF PLATES , DUE TO PLATE SIZE CONSTRAINT IN SUCH CASES,

STRESS RELIEVING IS REQUIRED EVEN IF NOT SPECIFIED BY DESIGN CODE.


NOTE-5: 10% DPT WITNESS BY CUSTOMER & MAIN CONTRACTOR DURING FINAL INSPECTION.


NOTE-6: RT FILM SHALL BE REVIEWED BY CUSTOMER DURING FINAL INSPECTION. QUANTUM OF RT WILL BE DEPEND ON JOINT EFFICIENCY TAKEN IN DESIGN.

NOTE-7: SAME QP IS APPLICABLE FOR ATM STORAGE TANKS ALSO, WHERE HYDRO TEST SHALL BE REPLACED BY WATER FILL TEST FOR 8Hrs DURATION.

REV	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
		7721702 REV : 0 Dated: 10.07.2012			


**Hinduja National Power Corporation Limited**


**CONSULTANT Mott MacDonald**

**PROJECT 2 \*520 MW THERMAL POWER STATION HNPCL VIZAG**


**BHARAT HEAVY ELECTRICALS LIMITED RANIPET**

DEPT CODE	NAME	SIGN	DATE
PPD	FKP	Sign.	13.07.2012
CHKD	BMC	Sign.	13.07.2012
Q	ASK	Sign.	13.07.2012

**TITLE : Field Quality Plan**  
 BHEL. DOC. NO: ROS 6046 REV.: 00  
 DFIPL. DOC. NO: FQP-D-KGC-K-088-01  
 REV .0



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3.0	Contents	1
4.0	Authorisation of Different Categories of Checks	1
5.0	Status of amendments	1
6.0	Field Quality Plan for RO Permeate Storage Tank	1
6.1	Statement of Checks	6
6.2	Documents Referred in Quality Plan	1
6.3	Log Sheets : L-00	2
7.0	Feedback on Field Quality Plan	1

Note : Please arrange to send the following copies for our reference

<u>Sl. No.</u>	<u>Reference Documents</u>	<u>Issuing Authority</u>
1.0	Welding Manual	BHEL RANIPETH
2.0	NDE	BHEL RANIPETH
3.0	WPS	BHEL RANIPETH
4.0	Approved welding consumables	BHEL RANIPETH

SAMPLE FQP

FIELD QUALITY PLAN

FOR

MISC. SITE FABRICATED TANKS  
(ERECTION)

FOR

2\*520 MW THERMAL POWER STATION HNPCL VIZAG



BHARAT HEAVY ELECTRICALS LIMITED.  
RANIPET

DFIPL DOC. No.: FQP-KGC-088  
REV. No. 0

FIELD QUALITY PLAN  
FOR  
MISC. SITE FABRICATED TANKS  
(ERECTION)  
2\*520 MW THERMAL POWER STATION HNPCL VIZAG

Prepared By	Farzan Pardiwala -Projects- DFIPL,		
Reviewed By	Benvin Coutinho, Manager - Quality		
Approved By	Mahadev Bile, Head Quality		
Documents No.	FQP-KGC-088	ID	Date 13.07.2012
Copy No.:	Controlled /	Copy	No.
Issue To:			Issued By Head / Quality



BHARAT HEAVY ELECTRICALS LIMITED.  
RANIPET





STATUS OF AMENDMENT

QP No. : FQP-KGC-088

REV No. : 0

SHEET 1 / 1 SHEET

SL NO.

REFERENCE OF  
SHEETS  
AMENDMENT

AMENDMENT NO.  
DATE &

REMARKS

---NIL---

SAMPLE FQP



STATEMENT OF CHECKS

QP No. : FQP-KGC-088

REV No. : 0

SHEET 1 OF 6

Capacity / Type : RO PERMEATE WATER TANK

System : MISCELLANEOUS SITE FABRICATED TANKS

Area : ERECTION

- For checks where log sheet are not called for , suitable records should be maintained in the form of log book / protocols.
- As an evidence of having carried out the work satisfactorily, a general-purpose log sheet L-OO shall be maintained for all the checks.
- Abbreviations used in the column "Type of Checks" are:
  - R : Record Verification
  - M : Measurement
  - V : Visual
  - P : Physical
  - T : Test.

SAMPLE FQP



DOCUMENTS REFERRED IN  
QUALITY PLAN

QP No. : FQP-KGC-088

REV No. : 0

SHEET 1 OF 1

SL. No.	Reference Document	Issuing Authority
1	Approved GA Drawing D-K-088-01	BHEL-PEM
2	Welding Manual	BHEL-PSSR
3	NDE	BHEL-PSSR
4	WPS	BHEL-Trichi
5	Approved Welding Consumables	BHEL-PSER
6	Errection / Instruction Manual	Supplier

SAMPLE FQP



INSTRUMENT REG.

DATE OF INSPECTION

DRAWING / DOCUMENT

PROTOCOL

SAMPLE FQP

			NAME	SIGNATURE &	QP No FQP-KGC-088
PROJECT	HNPL, VIZAG	INSPECTED			REV No. 0
UNIT No.		CLEAR BY			PROTOCOL NO.
RATING		COSTOMER			PAGE



		PROJECT			TITLE		FIELD QUALITY PLAN	
		RO Permeate Storage Tank For 2x520MW HNPL , Vizag Power Project			DOC NO.		FQP-KGC-088	
					PACKAGE		MICS SITE FABRICATED TANKS	
							ERECTION	
							PAGE 2 OF 6	
SR.NO	CHARECTERISTICS / ITEM	TYPE OF CHECK	INSTRUMENT	CLASS	QUANTUM / FREQUENCY OF CHECK	REFERENCE DOCUMENT / ACCEPTANCE STANDARD	FORMAT OF RECORD	
1.0.0	Foundation							
	Acceptance of Foundation					Para 6.1 & 9.1 of IS 803		
1.1.0	<b>MATERIAL INSPECTION</b>							
1.1.1	Raw Material	R		C	100%	Test Certificate verification		
1.1.2	Pre-Cutting Site Inspection	V	-	C	100%	Para 9.1 of IS 903	Inspection Report	
1.1.3	Protective Coating to Bottom side bottom plate	V	-	C	100%	Uniform Coating of Coal Tar Epoxy paint to avoid bottom plate corrosin	Inspection Report	
2.0.0	<b>Laying of Bottom Plates of Tank</b>					6.2.1 of IS 803		
2.1.0	Outer Dia of Floor plate correctness	M	TAPE	C	100%	Foudation Dia to be larger than outer Dia as show in Drg Para 6.2.1- C of IS 803	Inspection Report	
2.1.1	<b>Arrengment of Bottom Plate for Lap Joint</b>							
2.1.1.1	Plates to be Rectangular and square edged.	M	TAPE	C	100%	6.2.2 of IS 803	Inspection Report	
2.1.1.2	Minimum lapping at joints and arrangement of plate coming under the bottom shell ring.	M	TAPE	C	100%	Para 6.2.2 and Fig. 4 & 5A of IS 803	Inspection Report	

				TITLE		FIELD QUALITY PLAN	
				DOC NO.		FQP-KGC-088	
				PACKAGE		MICS SITE FABRICATED TANKS	
						ERECTION	
						PAGE 3 OF 6	
SR.NO	CHARECTERISTICS / ITEM	TYPE OF CHECK	INSTRUMENT	CLASS	QUANTUM / FREQUENCY OF CHECK	REFERENCE DOCUMENT / ACCETANCE STANDERD	FORMAT OF RECORD
<b>2.2.0</b>	<b>SHELL PLATE ERECTION</b>						
	Ensure edge preparation of shell plates					Cl. 6.3.5 of IS 803	
	Ensure alignment of Shell Plates at the location of joints					Cl. 6.3.5 of IS 803	
2.2.1	After Fixing 1st Course of shell plate in position	V / M	Tape / Bob / Plumb	B	100%	Within tolerance as per 9.3.5.1 of IS 803	Inspection Report
2.2.2	After Fixing subsequent courses of shall plates	V / M	Tape / Bob / Plumb	B	100%	9.3.6.1 & 9.3.6.2 of IS 803 Para 9.3.5.1, 9.3.7 & 6.3.4 of IS 803	Inspection Report
2.2.3	Before fixing curb angle	V	-	B	-		
2.2.4	After Fixing Curb Angle	V	-	B	-		Inspection Report
<b>2.3.0</b>	<b>ROOF ERECTION</b>						
2.3.1	After positioning Center Column	M	Tape / Bob / Plumb	C	-	To be at true centre of Tank and Vertical with tolerance	
2.3.2	After positioning the rafters and girders	M	-	C	100%	As per approved Drg. & Fig.10 of IS 803	
2.3.3	After Positioning Roof Plates	M	-	C	100%	As per approved Drg.	

		PROJECT		Misc Tank (site Fabrication) For 2x520MW HNPCL , Vizag Power Project		TITLE		FIELD QUALITY PLAN	
						DOC NO.		FQP-KGC-088	
						PACKAGE		MICS SITE FABRICATED TANKS	
								ERECTION	
								PAGE 4 OF 6	
SR.NO	CHARECTERISTICS / ITEM	TYPE OF CHECK	INSTRUMENT	CLASS	QUANTUM / FREQUENCY OF CHECK	REFERENCE DOCUMENT / ACCEPTANCE STANDARD	FORMAT OF RECORD		
2.4.0	<b>MANHOLE &amp; NOZZELS</b>								
2.4.1	Fit up of Nozzels, Manhole Frame and other appurtanance	V / M	-	B	100%	Article 7.1 to 7.6 of IS 803 and Approved Drawing			
2.5.0	<b>PLATFORM, GRATINGS AND STAIR WAYS</b>								
2.5.1	After positioning the angles, hand rails, gratings plates etc.	M	Tape	C	100%	7.7.1 & 7.7.2 of IS 803 and approved Drawing.			
3.0.0	<b>WELDING</b>								
3.1.0	Pre-Qualification	R	-	B	-	Appd. WPS of BHEL			
3.1.1	WPS					As per BHEL			
3.1.2	Welder Qualification					welding Manual of BHELL			
3.1.3	<b>Uses of Approved Welding Consumables</b>					As per Bhel Approved vendor List			
3.2.0	<b>WELDING PROCEDURE</b>								
3.2.1	Sequential welding of Vertical & Circumferential Joints	V	-	C	100%	Para 10.2 of IS 803			
3.2.2	Cleaning and Back Gauging of weld joints for the reverce side of weld	V	-	C	100%	Para 10.6.2 of IS 803 No Linear indication			
3.2.3	LPI (Liquied Penetrant Inspection) after root pass back gouging before final welding from opposite side.	V / T		B	10%	Para 10.6.3 10.6.6 of IS 803 NDE Manual of BHELL	Inspection Report		



PROJECT		Misc Tank (site Fabrication) For 2x520MW HNPCL , Vizag Power Project		TITLE	FIELD QUALITY PLAN		
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PROJECT		Misc Tank (site Fabrication) For 2x520MW HNPCL , Vizag Power Project		PACKAGE	MICS SITE FABRICATED TANKS	ERECTION	
PROJECT		Misc Tank (site Fabrication) For 2x520MW HNPCL , Vizag Power Project		PAGE 6 OF 6			
SR.NO	CHARECTERISTICS / ITEM	TYPE OF CHECK	INSTRUMENT	CLASS	QUANTUM / FREQUENCY OF CHECK	REFERENCE DOCUMENT / ACCEPTANCE STANDARD	FORMAT OF RECORD
5.0.0	<b>CLEANING &amp; PAINTING (Inside Tank)</b>						
5.1.0	Surface Preperation for Painting	V	Tools for cleaning	C	100%	As noted in the approved drg.	Inspection Report
5.2.0	Priming Coat	M	Elcometer	B	Random	As noted in the approved drg.	Inspection Report
5.2.1	Finish Coat	M	Elcometer	B	Random	As noted in the approved drg.	Inspection Report
5.2.2	Final Diamension befor Hydro Test	V	Tape	B	Random	As noted in the approved drg.	
6.0.0	<b>CLEANING &amp; PAINTING (Outside Tank)</b>						
6.1.0	Srface preperation	V	Tools for Manual cleaning	B	Random	Cleaning to the grade as noted in the approved drawing or as suggested by the paint maker	Inspection Report
6.1.1	Priming Coat	M	Elcometer	B	Random	As noted in the approved drg.	Inspection Report
6.1.2	Finish Coat	M	Elcometer	B	Random	As noted in the approved drg.	Inspection Report
7.0.0	Final Inspection And Clearance For Hand Over	V		A	100%	IS 803 and approved Drawing	Final Inspection Report
8.0.0	Inspection Documents	V		A	100%	All test Certificate and Inspection Reports & Approved QAP	Final Inspection Report
B	<b>Fabrication &amp; Erection Of Piping</b>						
1.1.0	Laying of Pipes For Staight Ness	V	PIANO WIRE	C	100%	As per Layout Drawing	LOG BOOK
1.1.1	Joint Fitment For Butt Joints	V	GAUGE	C	100%	Approved Drawing	LOG BOOK
1.1.2	Welder Qualification	R				As Per WPS / PQR	LOG BOOK
1.1.3	Welding Root Run	SURFACE DEFECT	DP TEST	C	100%	AS PER CODE	LOG BOOK
1.1.4	Final Welding	WELDING QUALITY	DP TEST	C	100%	AS PER CODE	LOG BOOK



RECORD OF QUALITY CHECKS

SHEET NO. OF FQP	CHECK NO.	RESULTS ARCHIVED OK / NOT OK	DRAWING DOCUMENTS REFERENCE	FORMAT OF RECORDS	INSPECTED BY SIGN. & DATE	CLEARED BY SIGN & DATE	REMARKS

SAMPLE FQP

Note : Any protocol made is to be numbered & mentioned in " Format of Record" column.

PROJECT	UNIT NO.	RATING	SYSTEM	SUB-SYSTEM	AREA	QP. NO. :FQP-KGC-088
						REV NO. 0
						LOG SHEET NO.:
						PAGE 1 OF 1



Ref :INSP:CHK:001/ REV 00  
DT:10/08/2020

## Inspection document Check List

Inspection documents to be submitted after inspection of the items for getting dispatch clearance. Vendor shall provide documents to the BHEL/BHEL TPIA inspector during inspection and TPIA shall sign all the documents.

The document dossier shall contain following.

SL no.	Documents
1	Unpriced PO COPY.
2	Latest approved specification, datasheet, drawing, P&ID, test procedures, approved painting schedule, Packing etc.
3	Approved QAP.
4	CQIR Report (Disposal code should be Accepted all the offered QTY)
5	<p>As per approved QAP all the inspection documents to be submitted.</p> <p><b>Indexing of the reports as per QAP and each page wise numbered and correlated to QAP.</b></p> <p><b>If more than one test in each page, against each test the clause number of QAP to be mentioned.</b></p> <p>Inspection clause shall be mentioned against each test.</p> <p>1. Raw Material Test Certificates (NABL approved Lab TC/Manufacturer TC like Mechanical properties, Chemical Properties, UT etc. as per approved QAP.</p>

*K. Kovarthan*

கி. கோவர்தான்  
கி. கோவர்தான் / K. KOVARTHANAN  
பரிசுடர் இঞ্জினியர் / Sr. Engineer  
கualitas / Quality Department  
BHEL R&P RANIPET-3

	<p>2. In process Inspection Reports like Hydro test, Dimension Report, MPI,UT ,Balancing etc. as per approved QAP.</p> <p>3. Final Inspection Reports like Shop Assembly with testing reports, Hydro test/Leak / Pressure test reports, Type test Reports, WPS/PQR/WPQ Reports, PT/RT/UT/MT Reports etc. as per approved QAP.</p> <p>4. Final Inspection like packing and surface preparation &amp; Painting/Metal finishing reports. (Sea worthy packing / Special Packing requirement).</p>
6	Relevant pages of standard shall be attached with report.
7	Calibration reports of the instruments used to be signed by TPI after verification.
8	Above said documents are should be in single .pdf file with not more than 10MB (if more than 10MB can be split into multiple files)
9	Hard copy of the same to be submitted along with material dispatch.

*Kovarthanan*

**K KOVARTHANAN**

கா. கோவர்த்தனன்  
 क. कोवर्धनन / K. KOVARTHANAN  
 वरिष्ठ इंजीनियर / Sr. Engineer  
 गुणवत्ता विभाग / Quality Department  
 बीएचईएल राणीपेट, राणीपेट, BHEL, BAP, RANIPET

**DM/QC PROC**

**BHEL RANIPET**