



Toase-eh Park Sanati Gohar Ofogh Petrochemical Co.

**CONCEPTUAL, BASIC and DETAIL DESIGN
ENGINEERING OF STYRENE PARK OFFSITE**



Document Title: Inspection and Test Plan (ITP)

Document No.: E1027-FPA-VD-QC-ITP-001

Rev.: R0

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STYRENE PARK OFFSITE

Document Title:

Inspection and Test Plan

Rev.	Issued Date	DESCRIPTION	PREPARED	CHECKED	APPROVED
R0	5-Aug-2024	IFA	F. Baviye	N. Abnavi	N. Abnavi



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**CONCEPTUAL, BASIC and DETAIL DESIGN ENGINEERING OF
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Page	Revisions							Page	Revisions						
	R0	R1	R2	R3	R4	R5	R6		R0	R1	R2	R3	R4	R5	R6
1	X							41							
2	X							42							
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Inspection & Test Plan (ITP)

DOC. NO.: E1027-FPA-VD-QC-ITP-001

OWNER: Toase-ehe Park Sanati Gohar Ofogh Petrochemical Co.

PROJECT: STYRENE PARK OFFSITE

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REV.: 00

PROJECT NO.: HX-127

ITEM NO.:

ITEM DESCRIPTION: CHILLER (EVAPORATOR)

ITEM NO.	QUALITY VERIFICATION ACTIVITY	REFERENCE PROCEDURE/ DOCUMENT	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	INSPECTION POINT		
					VENDOR	HSE	OWNER/TPI

NOTE:

1. Description of Inspection Points

HOLD POINT (HP)

The designated feature shall to be witnessed by OWNER INSPECTOR. Vendor/manufacturer is to notify project quality coordinator two weeks prior to performing the designated feature. Activities do not proceed until the continuation of work is permitted by project quality coordinator or waived in writing by him ("inspection waiver").

WITNESS POINT (WP)

The designated feature is to be witnessed by OWNER INSPECTOR. Vendor/manufacturer is to notify project quality coordinator two weeks prior to performing the designated feature. If the INSPECTOR fails to be present, activities may proceed without witnessing or waiving of the inspection as will be decided by Project quality coordinator.

RANDOM INSPECTION (RI)

The inspection of the designated feature will take place during inspection visits as a standard performance. Vendor/manufacturer does not have to notify Project quality coordinator prior to performing the designated feature. Activities may proceed without witnessing or waiving by Project quality coordinator

REVIEW DOCUMENTATION (RD/RA)

Documentation will be reviewed/approved by Project Engineering team or INSPECTOR depend the nature of documents (refer to VDIS in order to find that documents which shall be reviewed & approved by project engineering team and/or inspector).

2. Definition

Vendor:

Farnikan Pars Avin

Owner:

Toase-ehe Park Sanati Gohar Ofogh Petrochemical Co.

Consultant.

Hamian Sanat Energy

TPI:

Third Party Inspector

LEGEND:

HOLD POINT(HP)

WITNESS POINT(WP)

RANDOM INSPECTION(RI)

REVIEW DOCUMENTATION(RD/RA)



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Petrochemical Co.

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					VENDOR	HSE	OWNER/TPI	
1	Before Fabrication							
1-1	Review & Approval of Documents	<ul style="list-style-type: none"> - Mechanical Calculation (If Any) - Drawings (If Any) - Inspection & Test Plan - Welding Document (WPS,PQR,Welding Map & NDT Map) - WPQ & NDE Operator Certificates -QC Procedure: NDT Procedure,... - PWHT Procedure (if Any) -Hydrostatic Test Procedure -Painting Procedure 	Vendor Document Index & Schedule ASME Sec. V ASME Sec. VIII. Div.1 ASME Sec. IX Project Specification	Vendor Document Index & Schedule (APP. VDIS)	HP	RA	RA	
1-2	Pre-Inspection Meeting (PIM)	Pre-Inspection Meeting (PIM)	Pre-Inspection Meeting Agenda	Minutes of Meeting	HP	HP	HP	
2	Material Inspection							
2-1	Final Inspection of Material Receiving for Pressure Retaining Parts (Plate, Flange, Pipe,...) & Component (Tube, Tubesheet, Baffle,...)	<ul style="list-style-type: none"> - Check of Material Test Certificate(MTC) <ul style="list-style-type: none"> a. Confirmation of Heat No. c. Mechanical properties d. Other tests (NDE, Simulation Impact, etc.- if any) - Visual & Dimensional Check of Materials 	ASME Sec. II MTC/Lab. Result (if any) Fabrication Drawings TEMA	ASME Sec. II Part A Certificate Type : EN10204 Type 3.1	Check Advice	HP	WP	WP
2-2	Welding Consumable Control	- Visual Inspection	WPS & PQR ASME Sec. II, Part C	WPS & PQR ASME Sec. II, Part C	-	HP	RI	RI
3	Fabrication and Inspection of Shellside							
3-1	Transfer of Material Identification Before Cutting	-Visual Inspection	ASME Sec. II Fabrication Drawings	-	HP	RI	RI	
3-2	Marking, Cutting, Rolling & Drilling of Plate (If Any)	-Visual & Dimensional Inspection	Fabrication Drawings	-	HP	RI	RI	

LEGEND:

HOLD POINT(HP)

WITNESS POINT(WP)

RANDOM INSPECTION(RI)

REVIEW DOCUMENTATION(RD/RA)



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ITEM NO.	QUALITY VERIFICATION ACTIVITY	REFERENCE PROCEDURE/ DOCUMENT	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	INSPECTION POINT		
					VENDOR	HSE	OWNER/TPI

3 Fabrication and Inspection of Shellside

3-3	Edge Preparation & Fit up Alignment Check (For Long. & Circum. Joints, Nozzle Neck to Flange Joints)	-Visual & Dimensional Inspection - 100% PT on Weld Bevel (for Thk>=30mm)	Fabrication Drawings NDT Procedure Welding Book (WPS, PQR, Welding&NDT Map)	Report	HP	RI	RI
3-4	Welding Inspection (Welding of Long. & Circum. Joints, Nozzle Neck to Flange Joints)	- 100% Visual Inspection - 100% MT or PT on Back Grinding (if any) - NDT per App. NDT Map	Welding Book (WPS, PQR, Welding&NDT Map) NDT Procedure	Report	HP	RI	RI
3-5	Marking & Cutting of Nozzle Opening	- Check of nozzle marking - Dimensional Inspection of Opening (Elevation/Orientation/ Opening Size)	Fabrication Drawings	Report	HP	RI	RI
3-6	Edge Preparation & Fit up Alignment Check (For Nozzle to shell joints)	-Visual & Dimensional Inspection - 100% PT on Weld Bevel (for Thk>=30mm)	Fabrication Drawings Welding Book (WPS, PQR, Welding&NDT Map)	Report	HP	RI	RI
3-7	Welding Inspection (Welding of Nozzle to shell joints)	- 100% Visual Inspection - 100% MT or PT on Back Grinding (if any) - UT of Nozzle to Shell Welds	Welding Book (WPS, PQR, Welding&NDT Map) NDT Procedure	Report	HP	RI	RI
3-8	Edge Preparation & Fit up Alignment and Welding Check of Saddle and Attachments	-Visual & Dimensional Inspection - 10% PT	Fabrication Drawings Welding Book (WPS, PQR, Welding&NDT Map)	Report	HP	RI	RI
3-9	Final Visual & Dimensional Inspection	-Dimensional inspection: Overall length ID Check, Location of nozzle,... Visual for completed surface of internal & external welds,...	Fabrication Drawing ASME Sec. VIII, Div.1, UW-35 TEMA Fig. F-1~F-3, Purchase Order All Vendor Procedure and QC verified test / Inspection reports / records	Report	HP	RI	RI

4 Fabrication and Inspection of Channel

4-1	Transfer of Material Identification Before Cutting	-Visual Inspection	ASME Sec. II Fabrication Drawings	-	HP	RI	RI
4-2	Marking, Cutting, Rolling & Drilling of Plate (If Any)	-Visual & Dimensional Inspection	Fabrication Drawings	-	HP	RI	RI

LEGEND:

HOLD POINT(HP)

WITNESS POINT(WP)

RANDOM INSPECTION(RI)

REVIEW DOCUMENTATION(RD/RA)



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OWNER: Toase-ehe Park Sanati Gohar Ofogh Petrochemical Co. PROJECT: STYRENE PARK OFFSITE PAGE: 6 of 7 REV.: 00

PROJECT NO.: HX-127 ITEM NO.: ITEM DESCRIPTION: CHILLER (EVAPORATOR)

ITEM NO.	QUALITY VERIFICATION ACTIVITY	REFERENCE PROCEDURE/ DOCUMENT	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	INSPECTION POINT		
					VENDOR	HSE	OWNER/TPI

4 Fabrication and Inspection of Channel

4-3	Edge Preparation & Fit up Alignment Check (For Long. & Circum. Joints, Nozzle Neck to Flange Joints)	-Visual & Dimensional Inspection - 100% PT on Weld Bevel (for Thk>=30mm)	Fabrication Drawings Welding Book (WPS, PQR, Welding&NDT Map)	Report	HP	RI	RI
4-4	Welding Inspection (Welding of Long. & Circum. Joints, Nozzle Neck to Flange Joints)	- 100% Visual Inspection -100% MT or PT on Back Grinding (if any) -NDT per NDT Map	Welding Book (WPS, PQR, Welding&NDT Map) NDT Procedure	Report	HP	RI	RI
4-5	Marking & Cutting of Nozzle Opening	- Check of nozzle marking -Dimensional Inspection of Opening (Elevation/Orientation/ Opening Size)	Fabrication Drawings	-	HP	RI	RI
4-6	Edge Preparation & Fit up Alignment Check (For Nozzle to Channel Joints)	-Visual & Dimensional Inspection - 100% PT on Weld Bevel (for Thk>=30mm)	Fabrication Drawings Welding Book (WPS, PQR, Welding&NDT Map)	Report	HP	RI	RI
4-7	Welding Inspection (Welding of Nozzle(For Nozzle to Channel Joints)	- 100% Visual Inspection -100% PT or MT on Back Grinding (if any) - UT of Nozzle to Channel Welds	NDT Procedure Welding Book (WPS, PQR, Welding Map)	Report	HP	RI	RI
4-8	Final Visual & Dimensional Inspection	-Dimensional inspection: Overall length ID Check,Location of nozzle,... Visual for completed surface of internal &external welds,...	Fabrication Drawings ASME Sec. VIII, Div1, UW-35 TEMA Fig. F-1~F-3, Purchase Order All Vendor Procedure and QC verified test / Inspection reports / records	Report	HP	RI	RI

5 Fabrication and Inspection of Bundle

5-1	Tube bundle Assembly (Baffle Arrangement/Using Spacer&Tie Rods, Tubes Insertion ...)	- Visual & dimensional Check	Fabrication Drawings	-	HP	RI	RI
5-2	Cleaning of Tube Ends and Tubesheet Weld Area	- Visual Inspection	-	-	HP	-	-

LEGEND:

HOLD POINT(HP)

WITNESS POINT(WP)

RANDOM INSPECTION(RI)

REVIEW DOCUMENTATION(RD/RA)



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					VENDOR	HSE	OWNER/TPI

5 Fabrication and Inspection of Bundle

5-3	Welding Inspection of Tube to Tubesheet Joints	- Visual and Dimensional Control	Fabrication Drawings Welding Book (WPS, PQR, Welding&NDT Map)	Report	HP	RI	RI
5-4	Insertion Tubebundle in Shell	- Visual Control	-	-	HP	-	-
5-5	Air-Soap Test	Pressure 0.5 bar on Shell side	-	Report	HP	RI	RI
5-6	Tube Expanding Inspection	- Check of Expanding Ratio - Expanded Length 1% or 20 hole shall be reported	Fabrication Drawing Tube Expanding Procedure	Report	HP	RI	RI
5-7	NDE after Expansion	- 100% PT	Welding Book (WPS, PQR, Welding Map&NDT map) NDT Procedure	Report	HP	RI	RI

6 Final Inspection

6-1	Final Visual & Dimensional Inspection		AS-Built Drawing	Report	HP	WP	WP
6-2	Pressure Test (Hydrostatic Test) - 1st Shell Side - 2nd Tube Side		Fabrication Drawings, ASME Sec. VIII, Div.1, Hydro. Test Procedure	Report	HP	WP	WP
6-3	Blasting & Painting Inspection		Project Spec. & Painting Procedure	Report	HP	RI	RI
6-4	Marking / Packing & Shipping	- Name Plate Check - Spare Parts Check (if any) - Bolting and gaskets for blind flanges - N2 Purging(if any), ...	Spare Part List AS-Built Drawing N2 Purging Procedure	Packing List	HP	WP	WP
6-5	Release for Shipment		-	Release Note	HP	HP	HP
6-6	Manufacturer's Data Book		Manufacturer's Data Book Index	MDB	HP	RA	RA

LEGEND: HOLD POINT(HP) WITNESS POINT(WP) RANDOM INSPECTION(RI) REVIEW DOCUMENTATION(RD/RA)