

Inspection and Test Plan for Storage Tank

No.	Inspection and Test Plan	Reference Document	Acceptance Criteria	Verifying Document	Activity By			Remark
					Manuf.	TPI	Client	
1	Pre-Inspection Meeting	Spec.	Spec.	MOM	H	H	H	-
Before Manufacturing								
2	Approval of Mechanical Calculation Books	Data sheets, PO, Spec.	API 650, Spec.	Calculation Book	H	H	A	
3	Approval of Fabrication Drawings	DWG, Spec.	API 650, Spec.	DWG	H	H	A	
Materials								
4	Review mill test certificates of plates	DWG, Certificates	ASME SEC II	Certificates	H	W	R	
5	Review mill test certificates of pipe, flange, etc.	DWG, Certificates	ASME SEC II, 16.5	Certificates	H	W	R	
6	Review mill test certificates of welding consumable material	WPS, Certificates	ASME SEC II	Certificates	H	W	R	
7	Visual & Dimensional Check	DWG, Spec.	ASME SEC II	Report	H	W	R	
During manufacturing- Marking, Cutting, Beveling and Grinding								
8	Bottom Plates	DWG, WPS, Spec.	API 650, Spec.	Report	H	SW	R	
9	Annular Plates	DWG, WPS, Spec	API 650, Spec.	Report	H	SW	R	

10	Shell Courses	DWG, WPS, Spec	API 650, Spec.	Report	H	SW	R	
11	Roof Plates	DWG, WPS, Spec	API 650, Spec.	Report	H	SW	R	
12	Roof Structures	DWG, WPS, Spec	API 650, Spec.	Report	H	SW	R	
13	Wind Griders (If required)	DWG, WPS, Spec	API 650, Spec.	Report	H	SW	R	
14	Top Angles (if required)	DWG, WPS, Spec	API 650, Spec.	Report	H	SW	R	
15	Reinforcement Pads	DWG, WPS, Spec	API 650, Spec.	Report	H	SW	R	
16	Manhole Nozzle Neck (From Plates)	DWG, WPS, Spec	API 650, Spec.	Report	H	SW	R	
17	Pipe For Column (if required)	DWG, WPS, Spec	API 650, Spec.	Report	H	SW	R	
18	Pipe For Nozzles	DWG, WPS, Spec	API 650, Spec.	Report	H	SW	R	
19	Internal Pipes	DWG, WPS, Spec	API 650, Spec.	Report	H	SW	R	
20	Internal or External Supports	DWG, WPS, Spec	API 650, Spec.	Report	H	SW	R	
21	Sumps	DWG, WPS, Spec	API 650, Spec.	Report	H	SW	R	
22	Spiral Stairway & Platforms	DWG, WPS, Spec	API 650, Spec.	Report	H	SW	R	
23	Visual & Dimensional Check of Loose Parts	DWG, WPS, Spec	API 650, Spec.	Report	H	H	R	
During manufacturing- Forming and Rolling								
24	Shell Courses	DWG, Spec.	API 650, Spec.	Report	H	W	R	
25	Sumps	DWG, Spec.	API 650, Spec.	Report	H	SW	R	
26	Top Angles	DWG, Spec.	API 650, Spec.	Report	H	W	R	
27	Manhole Nozzle Neck (From Plates)	DWG, Spec.	API 650, Spec.	Report	H	SW	R	

28	Visual & Dimensional Check	DWG, Spec.	API 650, Spec.	Report	H	H	R	
During Manufacturing- Foundation								
29	Levelness of Ring Wall (if applicable)	DWG, Spec.	API 650, Spec.	Report	H	H	R	
30	Center Point and Radius	DWG, Spec.	API 650, Spec.	Report	H	H	R	
31	Flatness & Slope	DWG, Spec.	API 650, Spec.	Report	H	H	R	
32	Orientation	DWG, Spec.	API 650, Spec.	Report	H	H	R	
33	Anchor bolts(Distance, Projection ,etc.) as required	DWG, Spec.	API 650, Spec.	Report	H	H	R	
During Manufacturing- Welding								
34	WPS & PQR	DWG, WPS, PQR, Spec	ASME SEC IX	Report	H	R/A	R	
35	Welder/Welding Operator Qualification	DWG, WPS, WQT, Spec	ASME SEC IX	Report	H	R/A	R	
36	NDT Operator Certificate Check	Certificates	API 650, Spec.	Report	H	R/A	R	
37	Fit-up of bottom plates	DWG, WPS, Spec	API 650, Spec.	Report	H	H	R	
38	Welding sequence implementation	DWG, WPS, Spec	API 650, Spec.	Report	H	H	R	
39	Visual inspection of weldment	DWG, WPS, Spec	API 650, Spec.	Report	H	H	R	
40	Vacuum box test of bottom plates	Spec.	API 650, Spec.	Report	H	H	R	

41	Annular plate orientation check	DWG, Spec.	API 650, Spec.	Report	H	H	R	
42	Fit - up & welding of annular plate	DWG, WPS, Spec	API 650, Spec.	Report	H	H	R	
43	NDT of annular plate / Vacuum Test(If required)	Spec.	API 650, Spec.	Report	H	H	R	
44	Fit-up of Shell Plate	DWG, WPS, Spec	API 650, Spec.	Report	H	H	R	
45	Welding of Shell Plate	DWG, WPS, Spec	API 650, Spec.	Report	H	H	R	
46	PWHT (if Required)	WPS, Spec	API 650, Spec.	Report	H	H	R	
47	NDT of Shell Plate	Spec.	API 650, Spec.	Report	H	H	R	
48	Oil Test of Annular Plate to shell Plate	Spec.	API 650, Spec.	Report	H	H	R	
49	Fit-up & welding compression ring & roof plate	DWG, WPS, Spec	API 650, Spec.	Report	H	H	R	
50	Welding of roof plates	DWG, WPS, Spec	API 650, Spec.	Report	H	H	R	
51	Air test of roof plate	Spec.	API 650, Spec.	Report	H	H	R	
52	Air test of reinforcements	Spec.	API 650, Spec.	Report	H	H	R	
During Manufacturing- Dimentional Check								
53	Plumbness	DWG, Spec.	API 650, Spec.	Report	H	H	R	
54	Roundness	DWG, Spec.	API 650, Spec.	Report	H	H	R	
55	Peaking & Banding	DWG, Spec.	API 650, Spec.	Report	H	H	R	

56	Nozzle Elevation, Orientation and Projection	DWG, Spec.	API 650, Spec.	Report	H	H	R	
57	Manhole Elevation, Orientation and Projection	DWG, Spec.	API 650, Spec.	Report	H	H	R	
During Manufacturing- Hydro Static Test								
58	Verification of Test Package	Reports	API 650, Spec.	Report	H	H	R	
59	Hydro test(Water level/Holding time)	Spec.	API 650, Spec.	Report	H	H	H	
60	Settlement check (Refer to applicable procedure)	DWG, Spec.	API 650, Spec.	Report	H	H	R	
61	Water discharge	Spec.	API 650, Spec.	Report	H	W	R	
62	Cleaning check	Spec.	API 650, Spec.	Report	H	H	R	
During Manufacturing-Painting Activities								
63	Painting material identification/check	Spec.	API 650, Spec.	Report	H	H	R	
64	Weather condition & Surface Preparation (Blasting)	Spec.	API 650, Spec.	Report	H	H	R	
65	Primer Layer Inspection (Including Dry Thickness check)	Spec.	API 650, Spec.	Report	H	H	R	
66	Intermediate/Final Layer Inspection (Including Dry Thickness check)	Spec.	API 650, Spec.	Report	H	H	R	
During Manufacturing-Cathodic Protection and Electrical								

67	Check of material prior to installation	Spec.	API 650, Spec.	Report	H	H	R	
68	Installation of Earthing Bosses	Spec.	API 650, Spec.	Report	H	H	R	
69	Anode Installation	Spec.	API 650, Spec.	Report	H	H	R	
70	Check of Anode & conductor	Spec.	API 650, Spec.	Report	H	H	R	
71	Check the Bonding of UG Pipe	Spec.	API 650, Spec.	Report	H	H	R	
72	Cable Installation	Spec.	API 650, Spec.	Report	H	H	R	
73	Check the Test Box, Reference Electrode	Spec.	API 650, Spec.	Report	H	H	R	
74	installation of reference electrode including cable	Spec.	API 650, Spec.	Report	H	H	R	

Abbreviations:

H: Hold Point = Hold on the production till TPI Inspector performs inspection and supervise the required test

W: Witness Point = Manufacture shall notify client and TPI Inspector but there is no hold on the production; Client can waive this inspection based on his discretion and informs TPI Inspector accordingly.

R: Document Review = Review means Review document, which includes of material test certificates, WPS, PQR, NDT Procedures and etc.

A: Approval

SW: Spot Witness = for items with spot witness manufacture shall notify TPI inspector as fulfilling the monitoring; For example one random visit for whole UT tests or one or two visits for whole surface preparation works for painting.

MOM: Minute of Meeting

P.O: Purchase Order

www.inspection-for-industry.com

For more information review following articles:

<http://www.inspection-for-industry.com/above-ground-storage-tank-inspection.html>

[http://www.inspection-for-industry.com/third-party-inspection-for storage-tank-inspection.html](http://www.inspection-for-industry.com/third-party-inspection-for-storage-tank-inspection.html)

<http://www.inspection-for-industry.com/inspection-and-test-plan-for-storage-tank.html>