NDT MAP

**API 650**

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| **Code1** | **Approved**No commentManufacturing. | and | the | document | is | released | for |
| **Code2** | **Approved with comment**Vendor shall correct, revise and resubmit the document. The document can be released for Manufacturing if changes incorporated. |
| **Code3** | **Commented**Vendor shall correct, revise and resubmit the document by the date specified. The document shall be revised under the Status of “R: Revised Issue”. All corrected documents shall be resubmitted before starting the Manufacturing. |
| **Code4** | **Not Accepted (Rejected)**Vendor shall re-work/re-design/re-specify the contents of the documents according to the comments/ reasons for rejection. All corrected documents shall be resubmitted before starting the Manufacturing. |

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| **Rev.** | **Date** | **Status** | **Purpose of Issue** | **PREPARED** | **CHECHED** | **APPROVED** | **AUT’D** |

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# General Notes

1. For all welding VT is necessary
2. 50 % of butt-welded annular plate radial joints shall have 6-in. (15 cm ) radiographs taken at the outside of the selected joints
3. all welds of nozzles with single thickness reinforcing plates, saddle flanges, or integral reinforcing pads shall be air leak test. Does not include nozzles on the underside of tank bottoms or reinforcements that are too narrow.
4. Outer tank shall be pneumatic test.
5. The second pass of joints on which backing strips are to remain shall be PT.
6. stainless steel tanks: all butt welds not completely radiographed, cylinder wall to bottom annular plate weld, all welds of openings that are not completely radiographed (includes progressive PT) attachment welds to primary components, and the second layer of weld on joints with permanent backing strips shall be PT
7. Welds above hydro test level of the inner tank shall be vacuum box test.
8. Thirty percent of the circumferential welded joints (including weld neck flange to pipe joints) in liquid and vapor carrying piping shall be 100 % radiographed
9. For nozzles that does not carry liquid or product vapor (e.g., instrument conduit and purge lines) examination shall be only VT.
10. The radiography of internal piping shall be performed according API 650 Annex. Q
11. The items shall be only VT : Accesory, handrail, roof structure and platform, supports, Wind Girder to Wind Girder,top angle to top angle, top girder to top girder, suspended deck plates and stiffener.
12. Tanks shall be hydro test.
13. Welding of the root pass of nozzle to shell plate and roof plates shall be PT.
14. The manner of tests are illustrated in NDT procedure.
15. The radiography of external piping shall be according ISO drawing and specification requirements.

# Legend :

**VT :** Visual test

**UT :** Ultrasonic test

**PT :** Liquid penetrant test **MT :** Magnetic particle test **RT :** Radiography test **VBT :** Vacuum box test





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| Shell PlateRoot Pass Full PT (After Back Goaging)   1. Vertical spot radiograph: Item a: one in the first 3 m (10 ft) and one in each 30 m (100 ft) thereafter, 25 % of which shall be at intersections.
2. Horizontal spot radiograph: one in the first 3 m (10 ft) and one in each 60 m (200 ft) thereafter.
3. Vertical spot radiograph in each vertical seam in the lowest course.
 |
| Wind Girder to Shell Plates100 % PT | Top Angle to Shell Plates100 % PT |
| All Permanent Attachment to Shell, Roof and Bottom Plates100 % PT | Nozzle and Manhole to Shell Plate & Roof PlateAir Leak Test (Not 3)Root Pass PT (Note 13) |

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| Annular PlatesSpot RT (Note 2) Full PT (Not 5 & 6) Vacuum Box Testing | Bottom Plate to Bottom Plate & Bottom Plate to Annular PlateVacuum Box Testing |
| Outer Roof PlatesAir Leak Test (Pneumatic) | Shell Plate to Annular Plates100% PT(Both Side) Pen. Oil Test (1st Pass) |
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