

**NOTE: Rev 2 changes are in red fonts highlighted in yellow**

## Agenda Item 620-2078

**Title: PWHT Temperatures and Hold Times**

**Date:** May 7, 2026

**Revision:** 2

|             |                                                                                                                                |                                                                                                                                                                                                |
|-------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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**Purpose:** Bring the extended hold times into line with API 650 and ASME code.

**Source:** Aug 8, 2024 email from Doug Miller to Marilyn Shores. Discovered during 620 metrication.

**Impact:** More thorough stress relief in reduced temperature PWHT's

**Rationale:** ASME Code is generally viewed as the most up to date info on PWHT. API stds generally are updated to follow ASME updates. Table 6-4 in API 620 is currently in conflict with ASME. API 650 on the other hand follows ASME exactly. I see no reason why 620 should differ from 650/ASME.

For reference see below excerpts from ASME and API 650

\*\*\* ASME VIII-2 2023 2025 edition

Table 6.8 gives the default PWHT temp for carbon steel to be 1100F Table 6.16 gives the alternative PWHT requirements for decrease in temperature below the minimum specified temperature.

| Table 6.16<br>Alternative Postweld Heat Treatment Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Decrease in Temperature Below<br>Minimum Specified<br>Temperature, °C (°F)                                                                                                                                                                                                                                                                                                                                                                                                                           | Minimum Holding Time at Decreased<br>Temperature, h<br>[Note (1)] |
| ≤30 (≤50)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2                                                                 |
| 55 (100)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 4                                                                 |
| 85 (150) [Note (2)]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 10                                                                |
| 110 (200) [Note (2)]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 20                                                                |
| <b>GENERAL NOTES:</b><br>(a) Applicable only when permitted by Tables 6.8 through 6.15.<br>(b) Interpolation for time based on temperature reduction between values greater than 30°C (50°F) is permitted.<br><b>NOTES:</b><br>(1) Minimum holding time for 25 mm (1 in.) thickness or less. Add 15 min for each additional 25 mm (1 in.) of thickness greater than 25 mm (1 in.).<br>(2) These lower postweld heat-treat temperatures are permitted only for P-No 1, Group 1 and Group 2 materials. |                                                                   |

\*\*\* 14th edition, in section 5.7.4.58

| Minimum Stress-relieving Temperature |            | Holding Time<br>(hours per 25 mm [1 in.]<br>of thickness) | See Note |
|--------------------------------------|------------|-----------------------------------------------------------|----------|
| (°C)                                 | (°F)       |                                                           |          |
| 600                                  | 1100       | 1                                                         | 1        |
| 570                                  | 1050       | 2                                                         | 1        |
| 540                                  | 1000       | 4                                                         | 1        |
| 510                                  | 950        | 10                                                        | 1, 2     |
| 480 (min.)                           | 900 (min.) | 20                                                        | 1, 2     |

NOTE 1 For intermediate temperatures, the time of heating shall be determined by straight line interpolation.  
NOTE 2 Stress relieving at these temperatures is not permitted for A537 Class 2 material.

## Proposed Changes in API 620:

**Table 6-4 —Stress-relieving Temperatures and Holding Times**

| Metal Temperature<br>(° Fahrenheit)<br>(Note 1) | Holding Time<br>(hours per in.<br>of thickness) |
|-------------------------------------------------|-------------------------------------------------|
| 1100                                            | 1                                               |
| 1050                                            | 2                                               |
| 1000                                            | 3 4                                             |
| 950                                             | 5- 10 (Note 2)                                  |
| 900 (minimum)                                   | 10 20 (Note 2)                                  |

NOTE 1 For intermediate temperatures, the heating time shall be determined by straight line interpolation.

NOTE 2 These lower postweld heat-treat temperatures are permitted only for P-No 1, Group 1 and Group 2 materials.