

LAMPIRAN 1

LEMBAR PENGAMATAN PENGUKURAN ELEMEN PELEPASAN BLADDER SEBELUM PERUBAHAN

| LEMBAR PENGAMATAN | | | | | hal. 1 | | | |
|----------------------------------|-------|------|-------|-------|-------------------------------|-------|------|-------|
| | | | | | dari 1 hal | | | |
| PEKERJAAN : Penggantian bladder | | | | | TANGGAL : April - Juli 2016 | | | |
| NAMA MESIN : Mesin curing tipe A | | | | | JAM s/d | | | |
| NAMA OPERATOR : Supriyadi | | | | | (menit) jam | | | |
| NAMA STASIUN : Pelepasan bladder | | | | | NAMA PENGUKUR : Setyo Wandito | | | |
| NAMA PABRIK : PT XYZ | | | | | TANDA TANGAN : | | | |
| Siklus | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | 340.5 | 24 | 213 | 145.5 | 321 | 122 | 34 | 132 |
| 2 | 340 | 23.5 | 214.5 | 144 | 322.5 | 122 | 35 | 131 |
| 3 | 341 | 24 | 214 | 144 | 320 | 121 | 33.5 | 130.5 |
| 4 | 340 | 23 | 214.5 | 145.5 | 322 | 121 | 33.5 | 130.5 |
| 5 | 341 | 23 | 213 | 144 | 322 | 120 | 34 | 132 |
| 6 | 341 | 23.5 | 214 | 145.5 | 321.5 | 121 | 35 | 132 |
| 7 | 340 | 24 | 213 | 145 | 321.5 | 120.5 | 34 | 130 |
| 8 | 340.5 | 24 | 214 | 145 | 319 | 120.5 | 34.5 | 130 |
| 9 | 339.5 | 23.5 | 213 | 144.5 | 320.5 | 121 | 33.5 | 131 |
| 10 | 341 | 23.5 | 213 | 144 | 318.5 | 121 | 34 | 130.5 |
| 11 | 340 | 24 | 214 | 145 | 319 | 122 | 35 | 132 |

Lampiran 1.(lanjutan) Lembar pengamatan Pengukuran Elemen Pelepasan Bladder
Sebelum Perubahan

| | | | | | | | | |
|------------------------------|--------|-------|--------|-----------------------|--------|--------|-------|--------|
| 12 | 339.5 | 24 | 214 | 145 | 320.5 | 122 | 35 | 132 |
| 13 | 340 | 23.5 | 214 | 144 | 318.5 | 121 | 34 | 132 |
| 14 | 341 | 24 | 214 | 144 | 318.5 | 121 | 35 | 130 |
| 15 | 340 | 24 | 214 | 144.5 | 320 | 121 | 34 | 131 |
| 16 | 341 | 24 | 214 | 145.5 | 322 | 121 | 34.5 | 132 |
| 17 | 340 | 24 | 213.5 | 144.5 | 322 | 121 | 33.5 | 131 |
| 18 | 341 | 24 | 214 | 144 | 321.5 | 121 | 34.5 | 130.5 |
| 19 | 340.5 | 23.5 | 214 | 144 | 319 | 120.5 | 34 | 131 |
| 20 | 339.5 | 24 | 214.5 | 144 | 320.5 | 120.5 | 34.5 | 132 |
| 21 | 339.5 | 23.5 | 213 | 145.5 | 320 | 120 | 34 | 131 |
| 22 | 341 | 23.5 | 214 | 145.5 | 324.5 | 120 | 33.5 | 130.5 |
| 23 | 340 | 24 | 213 | 145.5 | 322 | 120.5 | 34 | 130.5 |
| 24 | 339.5 | 24 | 213 | 145 | 321.5 | 121 | 34.5 | 131 |
| 25 | 340 | 24 | 213 | 144 | 319 | 121 | 34.5 | 131 |
| 26 | 339.5 | 23.5 | 213 | 145.5 | 320.5 | 121 | 34 | 131 |
| 27 | 341 | 24 | 215 | 145.5 | 318.5 | 120 | 34 | 131 |
| 28 | 340 | 24 | 214 | 145 | 318.5 | 121 | 33.5 | 132 |
| 29 | 339.5 | 23.5 | 214 | 144 | 318.5 | 120 | 34 | 132 |
| 30 | 341 | 24 | 214 | 145.5 | 318.5 | 121 | 34 | 130 |
| WAKTU ELEMEN RATA-RATA | 340.27 | 23.75 | 213.75 | 144.88 | 320.83 | 121.13 | 34.17 | 131.08 |
| FAKTOR PENYESUAIAN | 1.08 | 1.08 | 1.08 | 1.05 | 1.05 | 1.08 | 1.08 | 1.08 |
| WAKTU NORMAL : 1.422,27 | | | | WAKTU BAKU : 1.835,58 | | | | |

LAMPIRAN 2

LEMBAR PENGAMATAN PENGUKURAN ELEMEN PEMASANGAN BLADDER SEBELUM PERUBAHAN

| LEMBAR PENGAMATAN | | | | | | | | | | | hal. 1 |
|-----------------------------------|-----|-----|------|----|-----|--|-------|----|----|------|------------|
| | | | | | | | | | | | dari 1 hal |
| PEKERJAAN : Penggantian bladder | | | | | | TANGGAL : April - Juli 2016 | | | | | |
| MESIN : Mesin curing tipe A | | | | | | JAM : s/d | | | | | |
| NAMA OPERATOR : Supriyadi | | | | | | (jam menit) | | | | | |
| NAMA STASIUN : Pemasangan bladder | | | | | | NAMA PENGUKUR : Setyo Wandito | | | | | |
| PABRIK : PT XYZ | | | | | | TANDA TANGAN : | | | | | |
| ELEMEN SIKLUS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 1 | 301 | 121 | 59.5 | 99 | 302 | 101.5 | 144.5 | 45 | 28 | 1200 | 44.5 |

| Lampiran 2.(lanjutan) Lembar pengamatan Pengukuran Elemen Pemasangan Bladder Sebelum Perubahan | | | | | | | | | | | |
|---|-------|-------|------|-------|-------|-------|-------|----|------|------|------|
| 2 | 301 | 121.5 | 61.5 | 100.5 | 300 | 102 | 144 | 45 | 28.5 | 1200 | 45.5 |
| 3 | 303 | 120 | 59.5 | 98.5 | 300.5 | 101.5 | 143 | 44 | 29 | 1200 | 44 |
| 4 | 303 | 122 | 59.5 | 99 | 302.5 | 102.5 | 144 | 45 | 28 | 1200 | 44.5 |
| 5 | 303 | 122 | 61 | 98.5 | 303 | 102.5 | 143 | 45 | 28 | 1200 | 44.5 |
| 6 | 303 | 120 | 61 | 100 | 300 | 102.5 | 143.5 | 44 | 28 | 1200 | 44 |
| 7 | 303 | 121.5 | 60.5 | 100 | 299.5 | 101 | 144 | 45 | 28.5 | 1200 | 45.5 |
| 8 | 301 | 121 | 61 | 99 | 300.5 | 102.5 | 144 | 45 | 28 | 1200 | 44 |
| 9 | 301 | 120 | 60 | 100 | 300.5 | 102 | 143 | 45 | 29 | 1200 | 44 |
| 10 | 302 | 120 | 60.5 | 98.5 | 300 | 101 | 144.5 | 44 | 28 | 1200 | 44.5 |
| 11 | 302.5 | 120 | 60 | 99 | 301.5 | 102.5 | 144.5 | 44 | 28.5 | 1200 | 44 |
| 12 | 302 | 122 | 60.5 | 100 | 303 | 101.5 | 143.5 | 45 | 28 | 1200 | 45.5 |
| 13 | 302 | 120 | 61 | 98.5 | 300 | 102.5 | 144 | 45 | 29 | 1200 | 44.5 |
| 14 | 301.5 | 119.5 | 60.5 | 99 | 300 | 102 | 143 | 44 | 28.5 | 1200 | 45 |
| 15 | 302 | 121.5 | 61.5 | 100 | 300 | 102 | 144.5 | 45 | 28 | 1200 | 45 |

Lampiran 2.(lanjutan) Lembar pengamatan Pengukuran Elemen Pemasangan Bladder Sebelum Perubahan

| | | | | | | | | | | | |
|----|-------|-------|------|-------|-------|-------|-------|------|------|------|------|
| 16 | 301.5 | 122 | 59.5 | 100 | 300.5 | 101 | 143.5 | 45 | 28 | 1200 | 45 |
| 17 | 301.5 | 122 | 61 | 100 | 302.5 | 102 | 144 | 44.5 | 29 | 1200 | 45.5 |
| 18 | 302 | 120 | 61.5 | 98.5 | 303 | 101 | 143 | 45 | 28 | 1200 | 44 |
| 19 | 300.5 | 120 | 59.5 | 100 | 300.5 | 102 | 143 | 44 | 29 | 1200 | 45.5 |
| 20 | 302 | 119.5 | 59.5 | 99 | 302.5 | 101 | 144 | 45 | 28 | 1200 | 44 |
| 21 | 302.5 | 120 | 61.5 | 98.5 | 302.5 | 102.5 | 144 | 44 | 29 | 1200 | 45 |
| 22 | 302 | 120 | 60 | 100.5 | 301.5 | 102 | 144 | 44 | 29 | 1200 | 45 |
| 23 | 302 | 120 | 61.5 | 99.5 | 302 | 102 | 143 | 44 | 28 | 1200 | 44.5 |
| 24 | 301.5 | 120.5 | 60 | 100.5 | 303 | 101.5 | 144 | 44 | 28 | 1200 | 45 |
| 25 | 301.5 | 120.5 | 60.5 | 100 | 303 | 102 | 144 | 45 | 29 | 1200 | 45 |
| 26 | 301 | 122 | 61 | 98.5 | 300.5 | 102 | 144 | 44 | 29 | 1200 | 45 |
| 27 | 302 | 121.5 | 60.5 | 100 | 300 | 101 | 143 | 45 | 29 | 1200 | 44 |
| 28 | 301.5 | 122 | 60 | 99 | 301.5 | 101 | 144 | 44 | 28 | 1200 | 45 |
| 29 | 303 | 120.5 | 60.5 | 100.5 | 300.5 | 102.5 | 143 | 45 | 28.5 | 1200 | 45 |
| 30 | 303 | 120.5 | 60 | 100.5 | 300 | 101 | 143.5 | 44 | 29 | 1200 | 44.5 |

Lampiran 2.(lanjutan) Lembar pengamatan Pengukuran Elemen Pemasangan Bladder Sebelum Perubahan

| | | | | | | | | | | | |
|------------------------------|--------|------------|-------|-------|-------|----------------------------|-------|-----------|-----------|------|------|
| WAKTU ELEMEN RATA-RATA | 301.95 | 120.7 7 | 60.47 | 99.48 | 301.2 | 101.8 | 143.7 | 44.5 5 | 28.4 5 | 1200 | 44.7 |
| FAKTOR PENYESUAIAN | 1.08 | 1.08 | 1.08 | 1.08 | 1.05 | 1.05 | 1.08 | 1.08 | 1.14 | 1 | 1.15 |
| WAKTU NORMAL : 2539.60 detik | | | | | | WAKTU BAKU : 3054.74 detik | | | | | |

LAMPIRAN 3

Uji Keseragaman Data Pada Masing-Masing Elemen Kerja Pada Pelepasan Bladder Sebelum Perubahan

| No | Elemen kerja | Ws | N | n | $\Sigma (x_i - \bar{x})^2$ | N-1 | σ | $\sigma \bar{x}$ | BKA | BKB | Keterangan |
|----|---|--------|----|---|----------------------------|-----|----------|------------------|--------|--------|------------|
| 1 | Menyiapkan alat bantu set up | 340.27 | 30 | 3 | 10.37 | 29 | 0.60 | 0.35 | 341.30 | 339.23 | seragam |
| 2 | Melepas mur as top ring dengan kunci 24 | 23.75 | 30 | 3 | 2.88 | 29 | 0.31 | 0.18 | 24.30 | 23.20 | seragam |
| 3 | Membuka clipring dan piringan atas dan baut clip ring dengan kunci T 12 | 213.75 | 30 | 3 | 9.88 | 29 | 0.58 | 0.34 | 214.76 | 212.74 | seragam |
| 4 | Melepas flexible top ring dengan kunci inggris | 144.88 | 30 | 3 | 12.84 | 29 | 0.65 | 0.38 | 146.01 | 143.74 | seragam |
| 5 | Melepas bladder dengan menggunakan hand lift | 320.83 | 30 | 3 | 78.92 | 29 | 1.58 | 0.92 | 323.58 | 318.09 | seragam |
| 6 | Melepas as top ring dengan menggunakan kunci T 6 | 121.13 | 30 | 3 | 11.59 | 29 | 0.58 | 0.34 | 122.14 | 120.11 | seragam |
| 7 | Melepas seal top ring | 34.17 | 30 | 3 | 7.17 | 29 | 0.50 | 0.29 | 35.03 | 33.30 | seragam |
| 8 | Membuka bladder dari piringan & clip ring bladder dengan kunci T | 131.08 | 30 | 3 | 15.21 | 29 | 0.72 | 0.42 | 132.34 | 129.83 | seragam |

LAMPIRAN 4

Uji Keseragaman Data Pada Masing-Masing Elemen Kerja Pada Pemasangan Bladder Sebelum Peruahan

| No | Elemen kerja | Ws | N | n | $\sum xi^2$ | N-1 | σ | $\sigma \bar{x}$ | BKA | BKB | Ket |
|----|---|--------|----|---|-------------|-----|----------|------------------|---------|---------|---------|
| 1 | Mengambil bladder baru pada area storage bladder | 301.95 | 30 | 3 | 14.97 | 29 | 0.72 | 0.42 | 303.21 | 300.72 | seragam |
| 2 | Memasang bladder pada piringan bladder dengan kunci T | 120.77 | 30 | 3 | 22.87 | 29 | 0.89 | 0.51 | 122.31 | 119.23 | seragam |
| 3 | Memasang seal top ring | 60.47 | 30 | 3 | 13.97 | 29 | 0.69 | 0.40 | 61.67 | 59.26 | seragam |
| 4 | Memasang as top ring dengan menggunakan kunci T 6 | 99.48 | 30 | 3 | 16.24 | 29 | 0.75 | 0.43 | 100.78 | 98.19 | seragam |
| 5 | Memasang bladder yang sudah dipasang dengan piringan ke mesin curing dengan menggunakan hand lift | 301.22 | 30 | 3 | 42.34 | 29 | 1.21 | 0.70 | 303.31 | 299.12 | seragam |
| 6 | Memasang flexible top ring dengan menggunakan kunci ingris | 101.8 | 30 | 3 | 9.80 | 29 | 0.58 | 0.34 | 102.81 | 100.79 | seragam |
| 7 | Memasang clip ring dan piringan atas serta baut clip ring dengan kunci T 12 | 143.70 | 30 | 3 | 8.30 | 29 | 0.53 | 0.31 | 144.63 | 142.77 | seragam |
| 8 | Memasang mur as top ring dengan kunci pas 24 | 44.55 | 30 | 3 | 7.18 | 29 | 0.50 | 0.29 | 45.41 | 43.69 | seragam |
| 9 | Pemeriksaan baut bladder dengan kunci T 12 | 28.45 | 30 | 3 | 6.18 | 29 | 0.46 | 0.27 | 29.25 | 27.65 | seragam |
| 10 | Melakukan pemanasan bladder sampai temperature minimal 110° C | 1200 | 30 | 3 | 0.00 | 29 | 0.00 | 0.00 | 1200.00 | 1200.00 | seragam |
| 11 | Melakukan uji coba bladder | 44.70 | 30 | 3 | 8.30 | 29 | 0.53 | 0.31 | 45.63 | 43.77 | seragam |

LAMPIRAN 5

Uji Kecukupan Data Pada Masing-Masing Elemen Kerja Pada Pelepasan Bladder Sebelum Perubahan

| No | Elemen kerja | N | $\sum xi^2$ | $(\sum xi)$ | $(\sum xi)^2$ | $N' = \{[40 * \text{akar}(N * \sum xi^2 - (\sum xi)^2)]/2\}^2$ | Keterangan |
|----|---|----|-------------|-------------|---------------|--|------------|
| 1 | Menyiapkan alat bantu set up | 30 | 3473452.5 | 10208 | 104203264 | 0.37 | cukup |
| 2 | Melepas mur as top ring dengan kunci inggris | 30 | 16948.5 | 713 | 508369 | 5.82 | cukup |
| 3 | Membuka clipring dan piringan atas dan baut clip ring dengan kunci T 12 | 30 | 1370468 | 6412 | 41113744 | 0.85 | cukup |
| 4 | Melepas flexible top ring dengan kunci inggris | 30 | 628589.25 | 4343 | 18857306.3 | 2.92 | cukup |
| 5 | Melepas bladder dengan menggunakan hand lift | 30 | 3079437.25 | 9612 | 92380932.3 | 20.68 | cukup |
| 6 | Melepas as top ring dengan menggunakan kunci T 6 | 30 | 438393.25 | 3627 | 13151502.3 | 2.65 | cukup |
| 7 | Melepas seal top ring | 30 | 35028 | 1025 | 1050625 | 17.60 | cukup |
| 8 | Membuka bladder dari piringan & clip ring bladder dengan kunci T | 30 | 515631.5 | 3933 | 15468489 | 5.38 | cukup |

LAMPIRAN 6

Uji Kecukupan Data Pada Masing-Masing Elemen Kerja Pada Pemasangan Bladder Sebelum Perubahan

| No | Elemen kerja | N | $\sum xi^2$ | $(\sum xi)$ | $(\sum xi)^2$ | N' | Keterangan |
|----|---|----|-------------|-------------|---------------|-------------|------------|
| 1 | Mengambil bladder baru pada area storage bladder | 30 | 2735531 | 9059 | 82065481 | 0.98263483 | cukup |
| 2 | Memasang bladder pada piringan bladder dengan kunci T | 30 | 437560.5 | 3623 | 13126129 | 14.34073976 | cukup |
| 3 | Memasang seal top ring | 30 | 109700.5 | 1814 | 3290596 | 21.34093641 | cukup |
| 4 | Memasang as top ring dengan menggunakan kunci T 6 | 30 | 296924.25 | 2984.5 | 8907240.25 | 10.66155423 | cukup |
| 5 | Memasang bladder yang sudah dipasang dengan piringan ke mesin curing dengan menggunakan hand lift | 30 | 2721986.75 | 9036.5 | 81658332.25 | 7.903835496 | cukup |
| 6 | Memasang flexible top ring dengan menggunakan kunci inggris | 30 | 310907 | 3054 | 9326916 | 3.706948792 | cukup |
| 7 | Memasang clip ring dan piringan atas serta baut clip ring dengan kunci T 12 | 30 | 619499 | 4311 | 18584721 | 1.334451026 | cukup |
| 8 | Memasang mur as top ring dengan kunci inggris | 30 | 59548.25 | 1336.5 | 1786232.25 | 10.37548449 | cukup |

Lampiran 6.(lanjutan) Uji Kecukupan Data Pada Masing-Masing Elemen Kerja Pada Pemasangan Bladder Sebelum Perubahan

| | | | | | | | |
|----|---|----|----------|-------|------------|-------------|-------|
| 9 | Pemeriksaan baut bladder dengan kunci T 12 | 30 | 24288.25 | 853.5 | 728462.25 | 18.84383851 | cukup |
| 10 | Melakukan pemanasan bladder sampai temperature minimal 110° C | 30 | 43200000 | 36000 | 1296000000 | 0 | cukup |
| 11 | Melakukan uji coba bladder | 30 | 59951 | 1341 | 1798281 | 13.79117057 | cukup |

LAMPIRAN 7

Data Perhitungan Waktu Normal Masing-Masing Elemen Kerja Pelepasan Bladder Sebelum Perubahan

| No | Elemen kerja | Ws | Ketrampilan | Usaha | Kondisi | Konsistensi | p | Wn |
|----|---|--------|-------------|-------|---------|-------------|------|--------|
| 1 | Menyiapkan alat bantu set up | 340.27 | 0.03 | 0.02 | 0.02 | 0.01 | 1.08 | 367.49 |
| 2 | Melepas mur as top ring dengan kunci inggris | 23.75 | 0.03 | 0.02 | 0.02 | 0.01 | 1.08 | 25.65 |
| 3 | Membuka clipring dan piringan atas dan baut clip ring dengan kunci T 12 | 213.75 | 0.03 | 0.02 | 0.02 | 0.01 | 1.08 | 230.85 |
| 4 | Melepas flexible top ring dengan kunci inggris | 144.88 | 0.03 | 0.02 | 0 | 0 | 1.05 | 152.12 |
| 5 | Melepas bladder dengan menggunakan hand lift | 320.83 | 0.03 | 0.02 | 0 | 0 | 1.05 | 336.88 |
| 6 | Melepas as top ring dengan menggunakan kunci T 6 | 121.13 | 0.03 | 0.02 | 0.02 | 0.01 | 1.08 | 130.82 |
| 7 | Melepas seal top ring | 34.17 | 0.03 | 0.02 | 0.02 | 0.01 | 1.08 | 36.90 |
| 8 | Membuka bladder dari piringan & clip ring bladder dengan kunci T12 | 131.08 | 0.03 | 0.02 | 0.02 | 0.01 | 1.08 | 141.57 |

LAMPIRAN 8

Data Perhitungan Waktu Normal Masing-Masing Elemen Kerja Pemasangan Bladder Sebelum Perubahan

| No | Elemen kerja | Ws | Ketrampilan | Usaha | Kondisi | Konsistensi | p | Wn |
|----|---|---------|-------------|-------|---------|-------------|------|---------|
| 1 | Mengambil bladder baru pada area storage bladder | 301.95 | 0.03 | 0.02 | 0.02 | 0.01 | 1.08 | 326.11 |
| 2 | Memasang bladder pada piringan bladder dengan kunci T12 | 120.77 | 0.03 | 0.02 | 0.02 | 0.01 | 1.08 | 130.43 |
| 3 | Memasang seal top ring | 60.47 | 0.03 | 0.02 | 0.02 | 0.01 | 1.08 | 65.30 |
| 4 | Memasang as top ring dengan menggunakan kunci T 6 | 99.48 | 0.03 | 0.02 | 0.02 | 0.01 | 1.08 | 107.44 |
| 5 | Memasang bladder yang sudah dipasang dengan piringan ke mesin curing dengan menggunakan hand lift | 301.22 | 0.03 | 0.02 | 0 | 0 | 1.05 | 316.28 |
| 6 | Memasang flexible top ring dengan menggunakan kunci inggris | 101.80 | 0.03 | 0.02 | 0 | 0 | 1.05 | 106.89 |
| 7 | Memasang clip ring dan piringan atas serta baut clip ring dengan kunci T 12 | 143.70 | 0.03 | 0.02 | 0.02 | 0.01 | 1.08 | 155.20 |
| 8 | Memasang mur as top ring dengan kunci inggris | 44.55 | 0.03 | 0.02 | 0.02 | 0.01 | 1.08 | 48.11 |
| 9 | Pemeriksaan baut bladder dengan kunci T 12 | 28.45 | 0.06 | 0.05 | 0.02 | 0.01 | 1.14 | 32.43 |
| 10 | Melakukan pemanasan bladder sampai temperature minimal 110° C | 1200.00 | 0 | 0 | 0 | 0 | 1 | 1200.00 |
| 11 | Melakukan uji coba bladder | 44.70 | 0.08 | 0.02 | 0.04 | 0.01 | 1.15 | 51.41 |

LAMPIRAN 9

Data Perhitungan Waktu Baku Masing-Masing Elemen Kerja Pelepasan Bladder Sebelum Perubahan

| No | Elemen kerja | Wn | Tenaga | Sikap kerja | Gerakan | Kelelahan mata | Suhu | Atmosfer | Lingkungan | Kelengkapan | Kelengkapan total | Wb |
|----|---|--------|--------|-------------|---------|----------------|------|----------|------------|-------------|-------------------|--------|
| 1 | Menyiapkan alat bantu set up | 367.49 | 7.5 | 1.0 | 0.0 | 0.0 | 5.0 | 1.0 | 1.0 | 2.5 | 0.18 | 433.64 |
| 2 | Melepas mur as top ring dengan kunci inggris | 25.65 | 7.5 | 4.0 | 1.0 | 0.0 | 7.0 | 1.0 | 1.0 | 2.5 | 0.24 | 31.81 |
| 3 | Membuka clipring dan piringan atas dan baut clip ring dengan kunci T 12 | 230.85 | 7.5 | 4.0 | 1.0 | 1.0 | 7.0 | 1.0 | 1.0 | 2.5 | 0.25 | 288.56 |
| 4 | Melepas flexible top ring dengan kunci inggris | 152.12 | 7.5 | 10.0 | 5.0 | 0.0 | 7.0 | 1.0 | 1.0 | 2.5 | 0.34 | 203.84 |
| 5 | Melepas bladder dengan menggunakan hand lift | 336.88 | 30.0 | 2.5 | 5.0 | 1.0 | 5.0 | 1.0 | 1.0 | 2.5 | 0.48 | 498.58 |
| 6 | Melepas as top ring dengan menggunakan kunci T 6 | 130.82 | 7.5 | 4.0 | 1.0 | 1.0 | 7.0 | 1.0 | 1.0 | 2.5 | 0.25 | 163.52 |
| 7 | Membuka bladder dari piringan & clip ring bladder dg kunci T12 | 141.57 | 7.5 | 1.0 | 1.0 | 1.0 | 5.0 | 1.0 | 1.0 | 2.5 | 0.20 | 169.88 |

LAMPIRAN 10

Data Perhitungan Waktu Baku Masing-Masing Elemen Kerja Pemasangan Bladder Sebelum Perubahan

| No | Elemen kerja | Wn | Tenaga | Sikap kerja | Gerakan | Kelelahan mata | Suhu | Atmosfer | Lingkungan | Kelengkapan | Total | Wb |
|----|---|--------|--------|-------------|---------|----------------|------|----------|------------|-------------|-------|--------|
| 1 | Mengambil bladder baru pada area storage bladder | 326.11 | 7.5 | 1.0 | 0.0 | 1.0 | 5.0 | 1.0 | 1.0 | 2.5 | 0.19 | 388.07 |
| 2 | Memasang bladder pada piringan bladder dengan kunci T12 | 130.43 | 7.5 | 1.0 | 1.0 | 1.0 | 7.0 | 1.0 | 1.0 | 2.5 | 0.22 | 159.12 |
| 3 | Memasang seal top ring | 65.30 | 7.5 | 4.0 | 1.0 | 1.0 | 7.0 | 1.0 | 1.0 | 2.5 | 0.25 | 81.63 |
| 4 | Memasang as top ring dengan menggunakan kunci T 6 | 107.44 | 7.5 | 4.0 | 1.0 | 1.0 | 7.0 | 1.0 | 1.0 | 2.5 | 0.25 | 134.30 |
| 5 | Memasang bladder yang sudah dipasang dengan piringan ke mesin curing dengan menggunakan hand lift | 316.28 | 30.0 | 2.5 | 5.0 | 1.0 | 5.0 | 1.0 | 1.0 | 2.5 | 0.48 | 468.09 |
| 6 | Memasang flexible top ring dengan menggunakan kunci ingris | 106.89 | 7.5 | 10.0 | 5.0 | 0.0 | 6.0 | 1.0 | 1.0 | 2.5 | 0.33 | 142.16 |

Lampiran 10. (lanjutan) Data Perhitungan Waktu Baku Masing-Masing Elemen Kerja Pemasangan Bladder Sebelum Perubahan

| | | | | | | | | | | | | |
|----|---|---------|-----|-----|-----|-----|-----|-----|-----|-----|------|----------|
| 7 | Memasang clip ring dan piringan atas serta baut clip ring dengan kunci T 12 | 155.20 | 7.5 | 4.0 | 1.0 | 1.0 | 7.0 | 1.0 | 1.0 | 2.5 | 0.25 | 194.00 |
| 8 | Memasang mur as top ring dengan kunci inggris | 48.11 | 7.5 | 4.0 | 1.0 | 0.0 | 7.0 | 1.0 | 1.0 | 2.5 | 0.24 | 59.66 |
| 9 | Pemeriksaan baut bladder dengan kunci T 12 | 32.43 | 7.5 | 4.0 | 1.0 | 1.0 | 7.0 | 1.0 | 1.0 | 2.5 | 0.25 | 40.54 |
| 10 | Melakukan pemanasan bladder sampai temperature minimal 110° C | 1200.00 | 0.0 | 0.0 | 0.0 | 1.0 | 5.0 | 1.0 | 1.0 | 2.5 | 0.11 | 1,326.00 |
| 11 | Melakukan uji coba bladder | 51.41 | 7.5 | 1.0 | 0.0 | 1.0 | 5.0 | 1.0 | 1.0 | 2.5 | 0.19 | 61.17 |

LAMPIRAN 11

LEMBAR PENGAMATAN PENGUKURAN ELEMEN PELEPASAN BLADDER SETELAH PERUBAHAN

| LEMBAR PENGAMATAN | | | | | | | hal. 1 |
|----------------------------------|-------|------|-------|------------------------------------|-------|------|------------|
| | | | | | | | dari 1 hal |
| PEKERJAAN : Penggantian bladder | | | | TANGGAL : Sept - Nov 2016 | | | |
| NAMA MESIN : Mesin curing tipe A | | | | JAM s/d | | | |
| NAMA OPERATOR : Supriyadi | | | | (jam menit) | | | |
| NAMA STASIUN : Pelepasan bladder | | | | NAMA PENGUKUR : Setyo W | | | |
| NAMA PABRIK : PT XYZ | | | | TANDA TANGAN : | | | |
| ELEMEN SIKLUS | 1 | 2 | 3 | 4 | 5 | 6 | |
| 1 | 270.5 | 16.5 | 112.5 | 321 | 122 | 34 | |
| 2 | 271.5 | 16 | 113 | 322.5 | 122 | 35 | |
| 3 | 269.5 | 17 | 113.5 | 320 | 121 | 33.5 | |
| 4 | 271 | 17 | 112 | 322 | 121 | 33.5 | |
| 5 | 270 | 16 | 113 | 322 | 120 | 34 | |
| 6 | 270 | 16 | 112.5 | 321.5 | 121 | 35 | |
| 7 | 269.5 | 16 | 114 | 321.5 | 120.5 | 34 | |
| 8 | 272 | 16 | 114.5 | 319 | 120.5 | 34.5 | |
| 9 | 270 | 16.5 | 115 | 320.5 | 121 | 33.5 | |
| 10 | 270 | 17 | 115 | 318.5 | 121 | 34 | |
| 11 | 271 | 16 | 113 | 319 | 122 | 35 | |
| 12 | 271 | 16.5 | 113 | 320.5 | 122 | 35 | |

| Lampiran 11.(lanjutan) Lembar pengamatan Pengukuran Elemen Pelepasan Bladder Setelah Perubahan | | | | | | | |
|---|--------|-------|--------|----------------------------|---------|-------|--|
| 13 | 272 | 16 | 114 | 318.5 | 121 | 34 | |
| 14 | 270.5 | 16.5 | 115 | 318.5 | 121 | 35 | |
| 15 | 272 | 16 | 112.5 | 320 | 121 | 34 | |
| 16 | 269.5 | 16.5 | 114 | 322 | 121 | 34.5 | |
| 17 | 270.5 | 16 | 113 | 322 | 121 | 33.5 | |
| 18 | 270.5 | 17 | 113 | 321.5 | 121 | 34.5 | |
| 19 | 270 | 16 | 115 | 319 | 120.5 | 34 | |
| 20 | 269.5 | 16.5 | 112.5 | 320.5 | 120.5 | 34.5 | |
| 21 | 271.5 | 16.5 | 115 | 320 | 120 | 34 | |
| 22 | 270 | 16.5 | 113 | 324.5 | 120 | 33.5 | |
| 23 | 269.5 | 16.5 | 112.5 | 322 | 120.5 | 34 | |
| 24 | 270.5 | 16.5 | 113.5 | 321.5 | 121 | 34.5 | |
| 25 | 269.5 | 17 | 113.5 | 319 | 121 | 34.5 | |
| 26 | 272 | 16 | 112 | 320.5 | 121 | 34 | |
| 27 | 270 | 16.5 | 115 | 318.5 | 120 | 34 | |
| 28 | 269.5 | 16 | 112 | 318.5 | 121 | 33.5 | |
| 29 | 272 | 17 | 114 | 318.5 | 120 | 34 | |
| 30 | 270.5 | 16 | 114.5 | 318.5 | 121 | 34 | |
| WAKTU ELEMEN RATA-RATA | 270,52 | 16,46 | 113,33 | 320,83 | 121,125 | 34,17 | |
| FAKTOR PENYESUAIAN | 1.08 | 1.08 | 1.05 | 1.05 | 1.08 | 1,08 | |
| WAKTU NORMAL : 933,53 detik | | | | WAKTU BAKU : 1234,47 detik | | | |

LAMPIRAN 12

LEMBAR PENGAMATAN PENGUKURAN ELEMEN PEMASANGAN BLADDER SETELAH PERUBAHAN

| LEMBAR PENGAMATAN | | | | | | | | | | | hal. 1 |
|-----------------------------------|-----|------|-------|-----|----|-------------------------------|------|---|------|----|------------|
| | | | | | | | | | | | dari 1 hal |
| PEKERJAAN : Penggantian bladder | | | | | | TANGGAL : Sept - Nov 2016 | | | | | |
| NAMA MESIN : Mesin curing tipe A | | | | | | JAM : s/d | | | | | |
| NAMA OPERATOR : Supriyadi | | | | | | (jam menit) | | | | | |
| NAMA STASIUN : Pemasangan bladder | | | | | | NAMA PENGUKUR : Setyo Wandito | | | | | |
| NAMA PABRIK : PT XYZ | | | | | | TANDA TANGAN : | | | | | |
| ELEMEN SIKLUS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 1 | 238 | 59.5 | 99 | 236 | 77 | 19 | 28 | 0 | 44.5 | | |
| 2 | 238 | 61.5 | 100.5 | 237 | 77 | 19.5 | 28.5 | 0 | 45.5 | | |

Lampiran 12.(lanjutan) Lembar pengamatan Pengukuran Elemen Pemasangan Bladder Setelah Perubahan

| | | | | | | | | | | | |
|----|-------|------|------|-------|------|------|------|---|------|--|--|
| 3 | 239 | 59.5 | 98.5 | 236 | 77 | 19 | 29 | 0 | 44 | | |
| 4 | 237.5 | 59.5 | 99 | 234.5 | 78 | 19.5 | 28 | 0 | 44.5 | | |
| 5 | 237.5 | 61 | 98.5 | 236.5 | 78.5 | 19 | 28 | 0 | 44.5 | | |
| 6 | 237 | 61 | 100 | 235.5 | 78 | 19 | 28 | 0 | 44 | | |
| 7 | 238.5 | 60.5 | 100 | 236 | 77.5 | 20 | 28.5 | 0 | 45.5 | | |
| 8 | 237 | 61 | 99 | 237 | 78 | 19.5 | 28 | 0 | 44 | | |
| 9 | 238 | 60 | 100 | 237 | 78.5 | 19.5 | 29 | 0 | 44 | | |
| 10 | 238 | 60.5 | 98.5 | 236.5 | 78.5 | 19 | 28 | 0 | 44.5 | | |
| 11 | 238 | 60 | 99 | 234.5 | 77 | 19 | 28.5 | 0 | 44 | | |
| 12 | 237.5 | 60.5 | 100 | 235 | 77.5 | 20 | 28 | 0 | 45.5 | | |
| 13 | 238.5 | 61 | 98.5 | 236.5 | 76.5 | 19 | 29 | 0 | 44.5 | | |
| 14 | 239 | 60.5 | 99 | 237 | 77 | 19 | 28.5 | 0 | 45 | | |
| 15 | 238 | 61.5 | 100 | 237 | 77.5 | 19.5 | 28 | 0 | 45 | | |
| 16 | 238.5 | 59.5 | 100 | 234.5 | 77 | 20 | 28 | 0 | 45 | | |
| 17 | 238 | 61 | 100 | 236.5 | 76.5 | 20 | 29 | 0 | 45.5 | | |

Lampiran 12.(lanjutan) Lembar pengamatan Pengukuran Elemen Pemasangan Bladder Setelah Perubahan

| | | | | | | | | | | | |
|------------------------|--------|-------|-------|-------|-------|-------|-------|---|------|--|--|
| 18 | 239 | 61.5 | 98.5 | 235.5 | 77.5 | 19.5 | 28 | 0 | 44 | | |
| 19 | 238.5 | 59.5 | 100 | 235.5 | 77.5 | 18.5 | 29 | 0 | 45.5 | | |
| 20 | 237 | 59.5 | 99 | 236.5 | 76.5 | 19.5 | 28 | 0 | 44 | | |
| 21 | 237 | 61.5 | 98.5 | 234.5 | 78 | 19.5 | 29 | 0 | 45 | | |
| 22 | 239 | 60 | 100.5 | 235 | 78.5 | 20 | 29 | 0 | 45 | | |
| 23 | 238.5 | 61.5 | 99.5 | 235 | 76.5 | 19.5 | 28 | 0 | 44.5 | | |
| 24 | 238.5 | 60 | 100.5 | 236 | 77.5 | 19 | 28 | 0 | 45 | | |
| 25 | 237 | 60.5 | 100 | 235.5 | 77 | 19 | 29 | 0 | 45 | | |
| 26 | 237 | 61 | 98.5 | 235 | 76.5 | 20 | 29 | 0 | 45 | | |
| 27 | 238.5 | 60.5 | 100 | 235.5 | 77 | 19.5 | 29 | 0 | 44 | | |
| 28 | 239 | 60 | 99 | 235 | 76.5 | 19.5 | 28 | 0 | 45 | | |
| 29 | 238 | 60.5 | 100.5 | 236 | 77.5 | 19.5 | 28.5 | 0 | 45 | | |
| 30 | 237.5 | 60 | 100.5 | 236 | 78 | 19 | 29 | 0 | 44.5 | | |
| WAKTU ELEMEN RATA-RATA | 238.02 | 60.47 | 99.48 | 235.8 | 77.38 | 19.38 | 28.45 | 0 | 44.7 | | |

| Lampiran 12.(lanjutan) Lembar pengamatan Pengukuran Elemen Pemasangan Bladder Setelah Perubahan | | | | | | | | | | | |
|--|------|------|------|------|------|----------------------------|------|---|------|--|--|
| FAKTOR PENYESUAIAN | 1.08 | 1.08 | 1.08 | 1.05 | 1.05 | 1.08 | 1.14 | 1 | 1.15 | | |
| WAKTU NORMAL : 863.28 detik | | | | | | WAKTU BAKU : 1123.79 detik | | | | | |